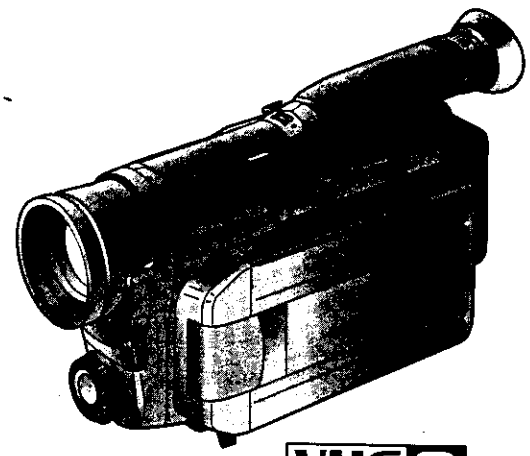
Panasonic

VHS-C Movie Camera

NV-VX7/5A
NV-VX3/1A

Operating Instructions



VHSC PAL

Before attempting to connect, operate or adjust this product, please read these instructions completely.

VQT6646

These operating instructions are for the four Movie Cameras models NV-VX1A, NV-VX3A, NV-VX5A and NV-VX7A. However, all instructions in this manual depict the model NV-VX7A.
Before using the Movie Camera for the first time, please read these Operating Instructions carefully—especially the Precautions **(➔ 59, 60, 61, 62)**. (The figures marked with an arrow indicate pages with additional related information.)
Keep these Operating Instructions handy for later reference.

■ **This Movie Camera lets you make your own video movies of scenes that you want to be able to watch again. To watch them, the cassette can be played back in a VCR (Video Cassette Recorder) or directly via a TV set.**

Recording with this Movie Camera is possible simply by:
1. Attaching a charged Battery Pack **(➔ 8)**
2. Inserting a Video Cassette **(➔ 10)**
3. Pressing the Start/Stop Button **(➔ 17)**

Playback is possible in the following ways:
1. Inserting a Video Cassette into Super-VHS or VHS Video Cassette Recorder by using the supplied Cassette Adaptor **(➔ 25)**
2. Using this Movie Camera as a VCR by connecting the Movie Camera to a TV set **(➔ 57)**

Note:
When the Movie Camera is turned on, it is in the Recording Pause Mode.
If the Start/Stop Button is then pressed, a new recording starts.
Therefore, be sure break out the cassette's tab to protect important recordings against accidental erasure. (➔ 28)

- Opening the LCD Monitor automatically turns off the Viewfinder. It is not possible to view the picture on the LCD Monitor and in the Viewfinder at the same time.
- In these Operating Instructions, the explanations are based on the use of the LCD Monitor, except those of the Power Save Functions.

Information for Your Safety

IMPORTANT
Your attention is drawn to the fact that recording pre-recorded tapes or discs or other published or broadcast material may infringe copyright laws.

WARNING
TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.

VHS-C Movie Camera
- **The rating plate is on the bottom side of the Movie Camera.**

AC Adaptor
- **The rating plate is on the bottom side of the AC Adaptor.**

FOR YOUR SAFETY

■ **DO NOT REMOVE THE OUTER COVER.**
To prevent electric shock, do not remove the cover. There are no user serviceable parts inside. Refer servicing to qualified service personnel.

Caution:
Injury or material damage resulting from any kind of use that is not in accordance with the operating procedures explained in the Operating Instructions is the sole responsibility of the user.

IF THE SUPPLY CORD OF THIS EQUIPMENT IS DAMAGED, IT MUST BE REPLACED BY THE SPECIAL CORD.

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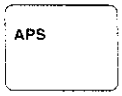
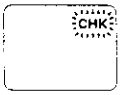
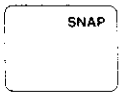
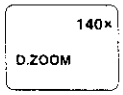
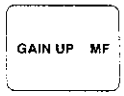
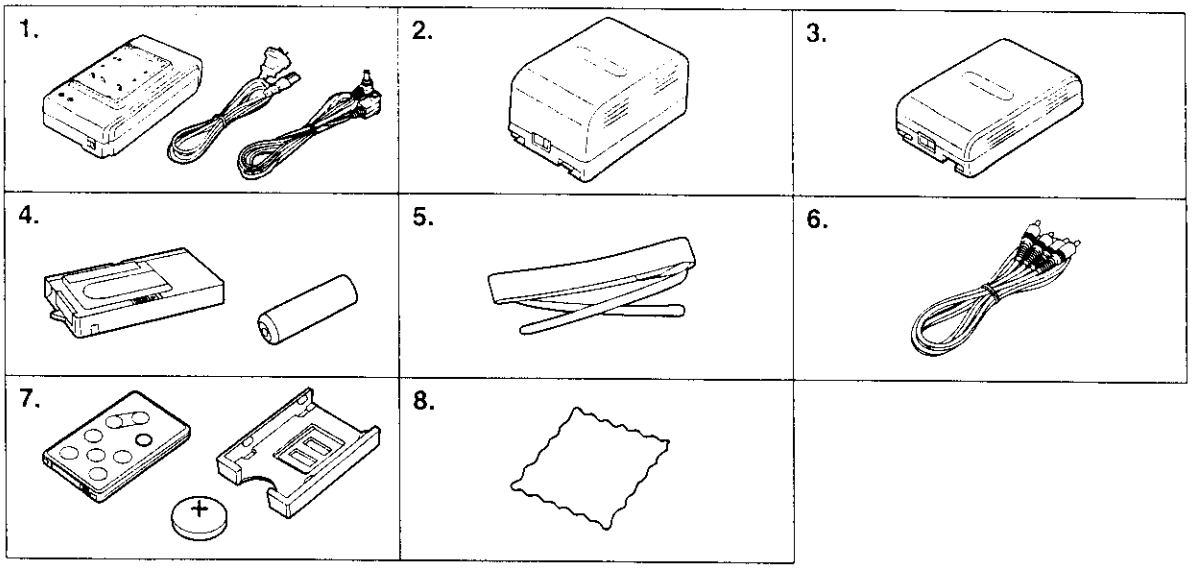
The four models NV-VX1A, NV-VX3A, NV-VX5A and NV-VX7A are explained together in these Operating Instructions. Regarding the differences between these four models, refer to the chart below.

	Item	Page	NV-VX1/ 5A	NV-VX3/ 7A
Switches, Buttons	[POWER SAVE] Switch	21, 22	No	Yes
	[SNAPSHOT REC] Button	38	No	Yes
	[DIGITAL] Button	39, 40 41, 42	No	Yes
Viewfinder Indications		21	No	Yes
		22	No	Yes
		38	No	Yes
		39	No	Yes
		39	No	Yes
		40	No	Yes
		41	No	Yes
		42	No	Yes

The explanations are mainly based on the model NV-VX7A. When functions and operations of the NV-VX1A, NV-VX5A are different from those of the NV-VX3A, NV-VX7A, explanatory notes are inserted in the relevant items or pages.



Before Recording

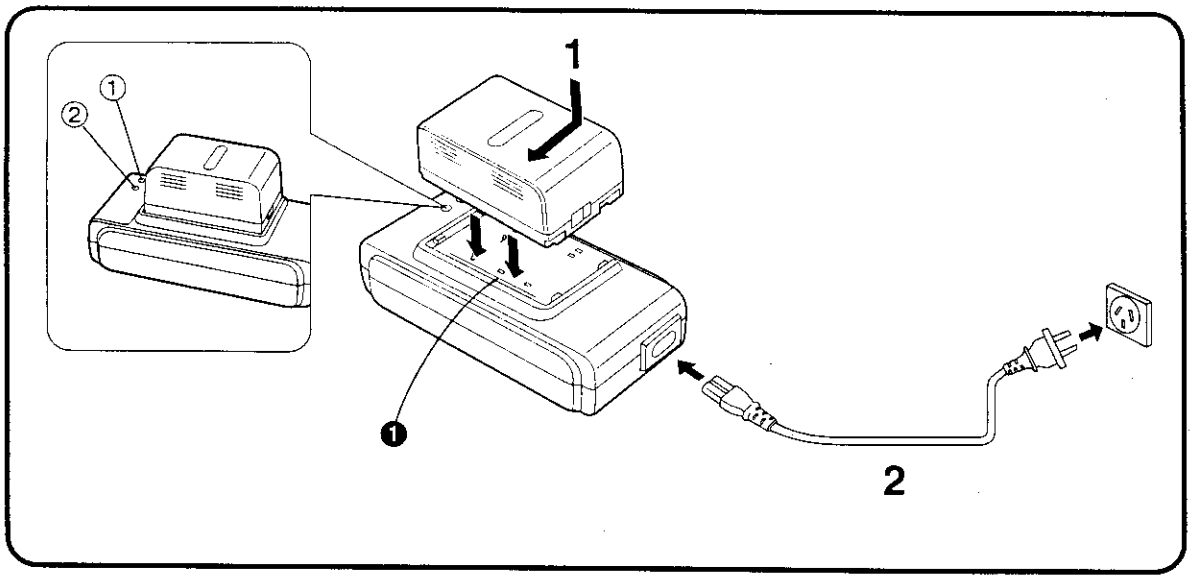
1 Standard Accessories

1. **AC Adaptor**
   For supplying power to the Movie Camera or for charging the Battery Pack
   DC Input Cable and AC Mains Cable
   For connecting the AC Adaptor to the Movie Camera and to an AC mains socket
2. **Battery Pack (NV-VX7A only)**
   For supplying power to the Movie Camera
3. **Battery Pack (NV-VX5A/3A/1A only)**
   For supplying power to the Movie Camera
4. **Cassette Adaptor and Battery**
   For playing back the VHS-C video cassette on a VCR
5. **Shoulder Strap**
   (Depending on the Movie Camera model, the form of the Shoulder Strap may differ from the above illustration.)
6. **Audio/Video Cable**
   For connection to a TV set or VCR
7. **Remote Controller, Remote Controller Holder and Button-Type Battery**
8. **Cleaning Tissue**
   For cleaning the Lens and the LCD Monitor

Notes:

1. Before connecting, confirm that all systems are turned off and that the connection cables are not damaged.
2. Do not expose the connection cables to high temperature, chemicals and objects with sharp edges; also do not bend the cables excessively.
3. Do not connect the cables with wet hands.
4. When unplugging the AC Mains Cable, pull it by the plug, not by the cable.

CAUTION:
TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD AND ANNOYING INTERFERENCE, USE THE RECOMMENDED ACCESSORIES ONLY.



2 How to Charge the Battery Pack

The following explanations show you how to use the supplied AC Adaptor for charging the Battery Pack.
The Battery Pack is a nickel-cadmium storage battery. As it self-discharges relatively easily, it is recommended to charge the Battery Pack not more than one day before using it.
The Battery Pack's ability to generate electric energy is based on a chemical reaction. Because this reaction can take place better at high temperature, the maximum recording time may be considerably shorter than listed **(→ 7)** when recording at low temperature.

Notes:

1. When charging the Battery Pack, disconnect the DC Input Cable **(→ 30)** from the AC Adaptor.
2. Charge the Battery Pack at a room temperature between 10°C and 35°C.
3. If the operation time of the Battery Pack after charging is too short for practical use, the Battery Pack has reached the end of its service life. Replace it with a new one.
4. Do not charge the Battery Pack again when it is already fully charged.
5. During use on the Movie Camera and during charging, the Battery Pack may become warm. This is normal.

1 Attach the Battery Pack.

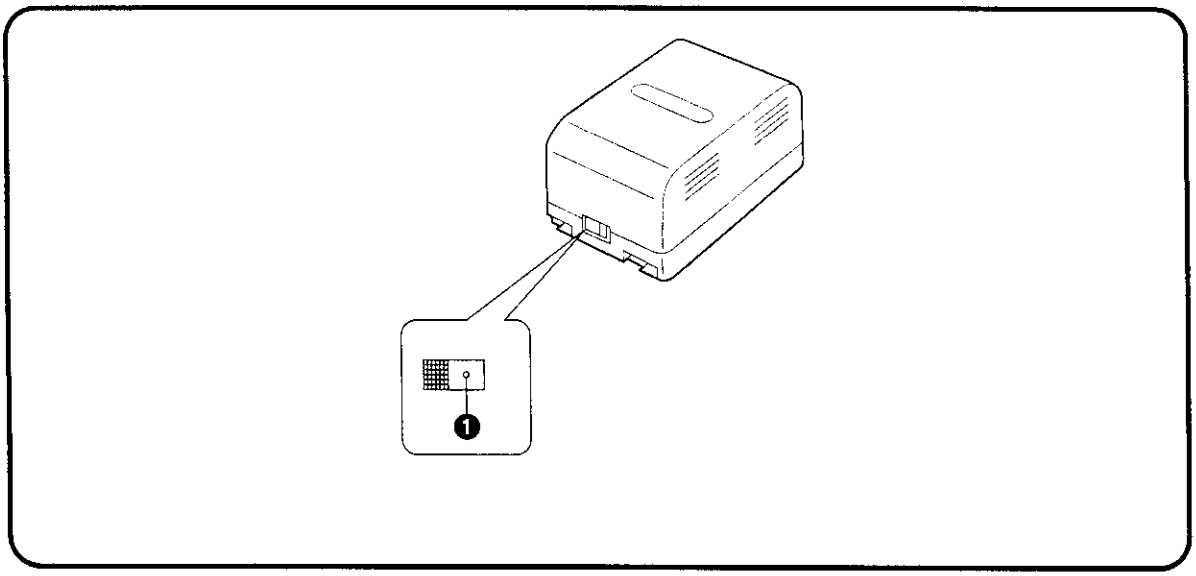
- Align the Battery Pack with line ❶ and push it in the direction of the arrow while holding it down. (To remove the Battery Pack, slide it in the opposite direction.)

2 Securely connect the AC Mains Cable to the AC Adaptor and an AC mains socket.

- The Power Lamp ① lights and then the Charging Indication Lamp ② lights, too.

■ Charging Indication Lamp

Lit: During charging
Not lit: Charging has finished. For optimum charging, continue charging for 2 hours after the lamp goes out.



■ Charging Time and Maximum Time for Continuous Recording in the Manual Recording Mode

Battery Pack No.	Charging Time	Max. Continuous Recording Time
Supplied	130 min.	70 min.
VW-VBS10E	65 min.	35 min.
VW-VBS20E	130 min.	70 min.
VW-VBH10E	80 min.	45 min.
VW-VBH20E	160 min.	90 min.

(The times shown in the above chart are approximations.)

Notes:

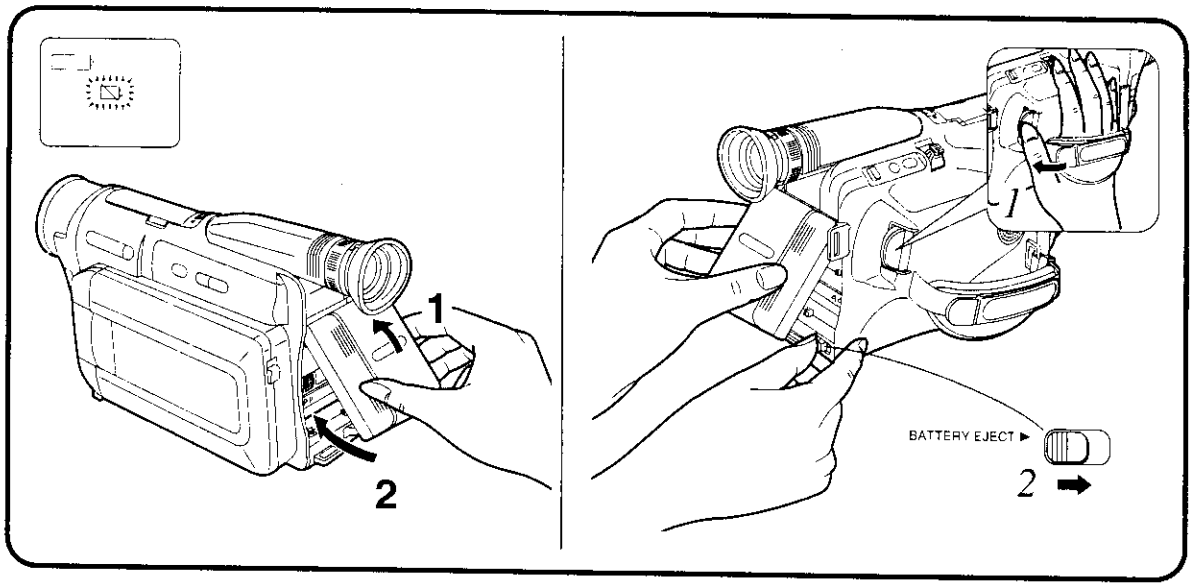
- Depending on the condition of the Battery Pack, the charging time may be longer than listed above.
- The use of the zoom and other functions increases the power consumption, so that the actual recording time per Battery Pack may actually be 30%–50% less than the max. continuous recording time listed above.
- When turning on the Movie Camera after attaching the Battery Pack, the Remaining Battery Power Indication initially indicates a fully charged Battery Pack regardless of its actual charging condition. Approx. 1 minute later, the indication changes and shows the approximate battery power actually remaining.

How to charge a Battery Pack if its operation time has become too short for practical use, or if it has been stored for a long time:

Continue charging for 24 hours even after the Charging Indication Lamp on the AC Adaptor goes out.
(If this does not result in an operation time sufficient for practical use, the service life of this Battery Pack has reached its end. Replace it with a new one.)

■ Using the Charge Confirmation Marker

Use this marker to distinguish between charged and discharged Battery Packs.
For example, slide the knob so that the dot ❶ is visible after the charging is completed.



3 How to Attach the Charged Battery Pack

If you attach an exhausted Battery Pack, the " " Indication on the LCD Monitor or in the Viewfinder flashes.

1 Attach the Battery Pack with its upper part (the end with the Charge Confirmation Marker) into the upper Battery Pack Holder.

2 Press the lower part of the Battery Pack toward the Movie Camera until it locks with a click.

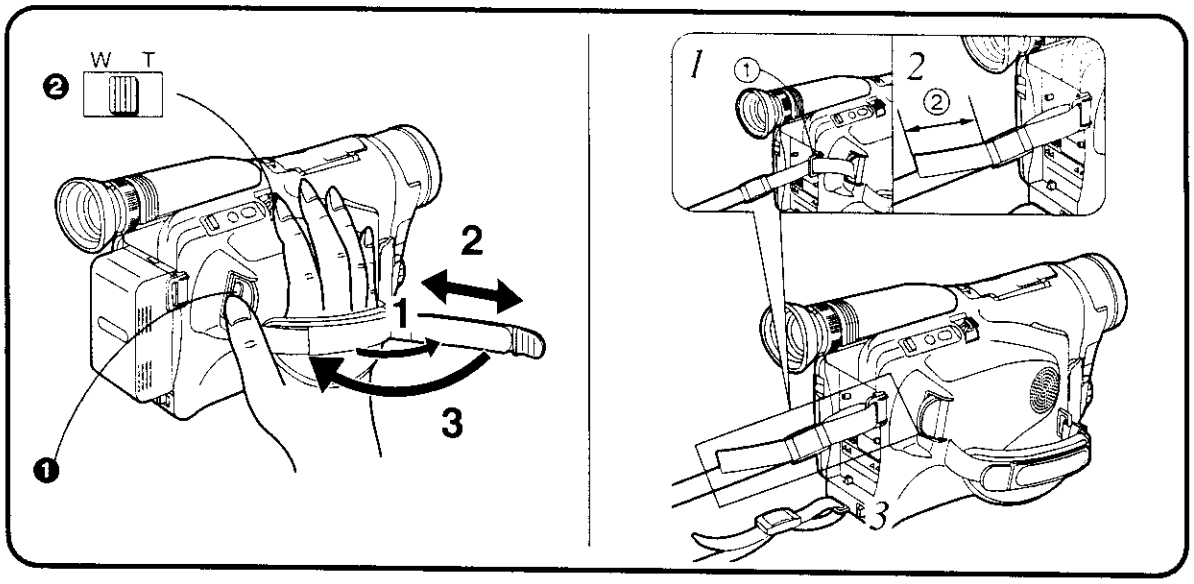
■ Removing the Battery Pack

Notes:

1. Never remove the Battery Pack during recording or playback, because the tape would remain in contact with the video heads and this could cause damage to the heads and tape.
2. When sliding the [BATTERY EJECT ▶] Lever, be sure to hold the Battery Pack as shown in the illustration above, to prevent it from dropping.
3. After use, remove the Battery Pack from the Movie Camera and keep it in a cool place. If you leave the Battery Pack attached to the Movie Camera, a small amount of current flows to the Movie Camera even if the [POWER] Switch is turned in, and this reduces the Battery Pack's charging capacity.

1 **Turn in the [POWER] Switch. (The Movie Camera switches off.)**

2 **Pull off the Battery Pack while sliding the [BATTERY EJECT ▶] Lever in the direction of the arrow.**



4 How to Adjust the Grip Belt

■ Adjusting the Length of the Grip Belt

Adjust the Grip Belt so that you can press the Start/Stop Button ❶ with your thumb, and the [W • T] Zoom Lever ❷ (→ 36) with your index finger, as shown in the illustration.

1 **Unfasten the velcro tape closure.**

2 **Adjust the length of the Grip Belt.**

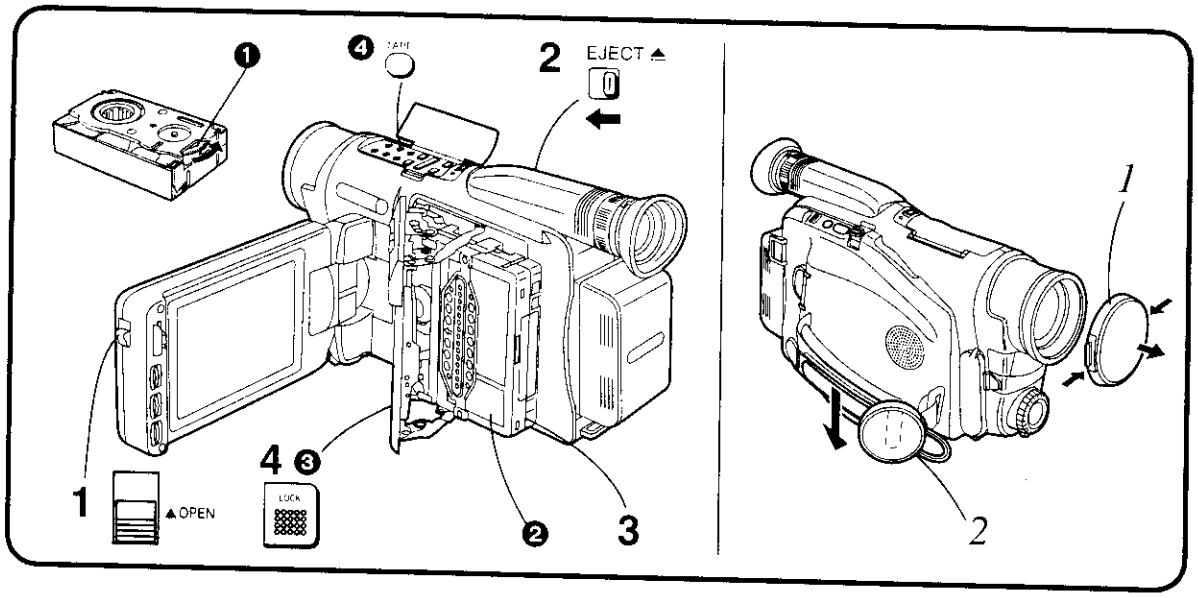
3 **Fasten the velcro tape closure.**

5 How to Attach the Shoulder Strap

1 **Pull the end of the Shoulder Strap through the Shoulder Strap Holder ①.**

2 **Securely attach the end of the Shoulder Strap (② More than 2 cm).**

3 **Attach the other end of the Shoulder Strap in the same way as above.**



6 How to Insert the Video Cassette

Notes:

1. Do not repeatedly insert and take out the video cassette. This could cause the tape to get loose and damaged.
2. Before inserting the video cassette, make sure that the tape is not loose. If it is loose, tighten it by turning the cog wheel ❶ on the side of the video cassette in the direction of the arrow.
3. You cannot take out the video cassette during recording.

1 Slide the LCD [OPEN] Lever upwards to open the LCD Monitor.

- Open up the LCD Monitor by 90° before opening the Cassette Compartment.

2 Slide the [EJECT ▲] Lever in the direction of the arrow.

- After a few seconds, the Cassette Compartment opens completely.

3 Insert the video cassette with the cassette window ❷ facing outward.

4 Close the Cassette Compartment by pressing the [LOCK] Button ❸.

■ Ejecting the Video Cassette

Slide the [EJECT ▲] Lever and pull out the video cassette.
Close the Cassette Compartment by pressing the [LOCK] Button.

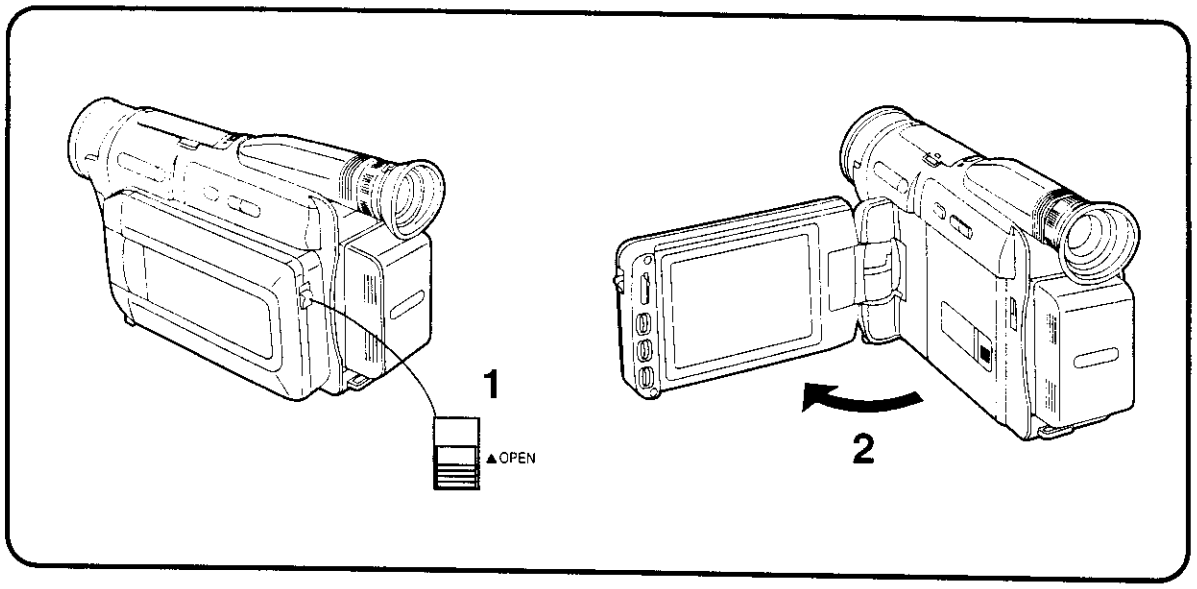
■ When Inserting an EC45 (or EC60)-type Video Cassette

Press the [TAPE] Button ❹ to change the Tape Length Indication on the LCD Monitor to "45" (or "60") so that the Remaining Tape Time Indication (➔ 32) functions correctly.

7 How to Remove the Lens Cap

1 **Press on both sides of the Lens Cap and pull it off.**

2 **Hook the Lens Cap onto the Grip Belt to prevent it from getting in front of the Lens.**



8 Viewing on the LCD Monitor

Improved LCD backlight transmission makes the picture extra bright. In addition, special coating of the LCD's surface diffuses the light from outside to minimize light reflection, so the picture has vivid colours and is easy to see.

■ Opening the LCD Monitor

1 Slide the LCD [OPEN] Lever upwards.
- The LCD Monitor pops open.

2 Open the LCD Monitor to the click stop (approx. 90°).

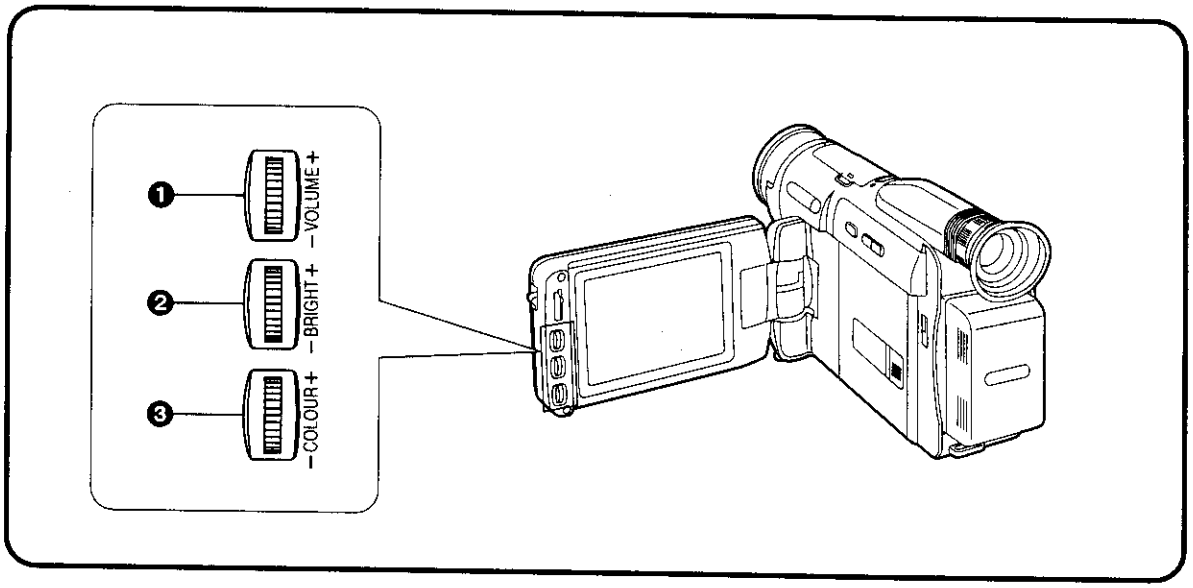
■ Closing the LCD Monitor

Push the LCD Monitor to close it until it locks with a click.

Notes:
- Return the LCD Monitor to its vertical position before closing it. Also, make sure that the Cassette Compartment is securely closed before closing the LCD Monitor.
- When the LCD Monitor is open, no picture appears in the Viewfinder.

■ Cautions for the LCD Monitor

- Extremely high precision technology is employed in producing the LCD Monitor. The result is more than 99.99% effective pixels with a mere 0.01% of the pixels inactive or always lit.
- When the Movie Camera is very cold when turning it on, the LCD Monitor is darker than normally. However, as it reaches normal temperature, it regains its normal brightness.
- To remove fingerprints, wipe it with the supplied Cleaning Tissue or a similar soft cloth.
- Do not expose the LCD Monitor to direct sunlight. When sunlight falls onto the LCD Monitor, it may be difficult to view the picture.
- Do not apply any pressure to the surface of the LCD Monitor or subject it to strong shocks.
- Before transporting the Movie Camera, securely close the LCD Monitor.



■ Adjusting the Picture Quality of the LCD Monitor

Use the following controls to adjust the picture quality when the LCD is not easy to see because of the surrounding conditions.

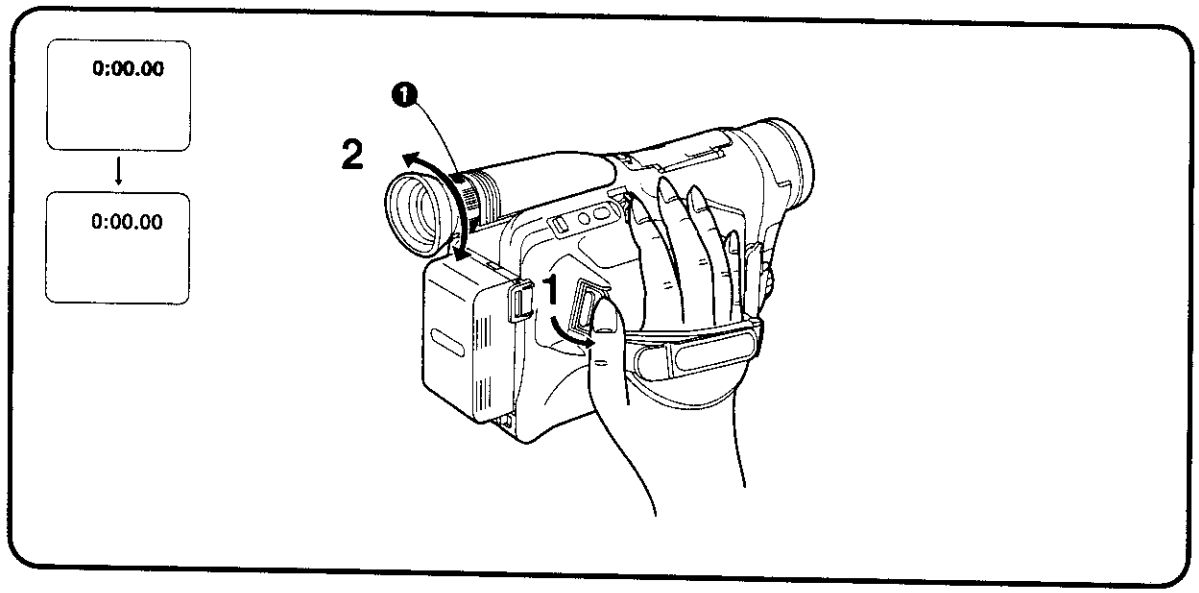
❶ **[VOLUME] Control**
For adjusting the volume of the sound.

❷ **[BRIGHT] Control**
For adjusting the LCD's luminance intensity.

❸ **[COLOUR] Control**
For adjusting the LCD's colour saturation.

■ Adjusting the Angle of the LCD Monitor

The LCD Monitor rotates upward up to 180° and downward 90° from its normal vertical position.



9 Adjusting the Viewfinder Eyepiece

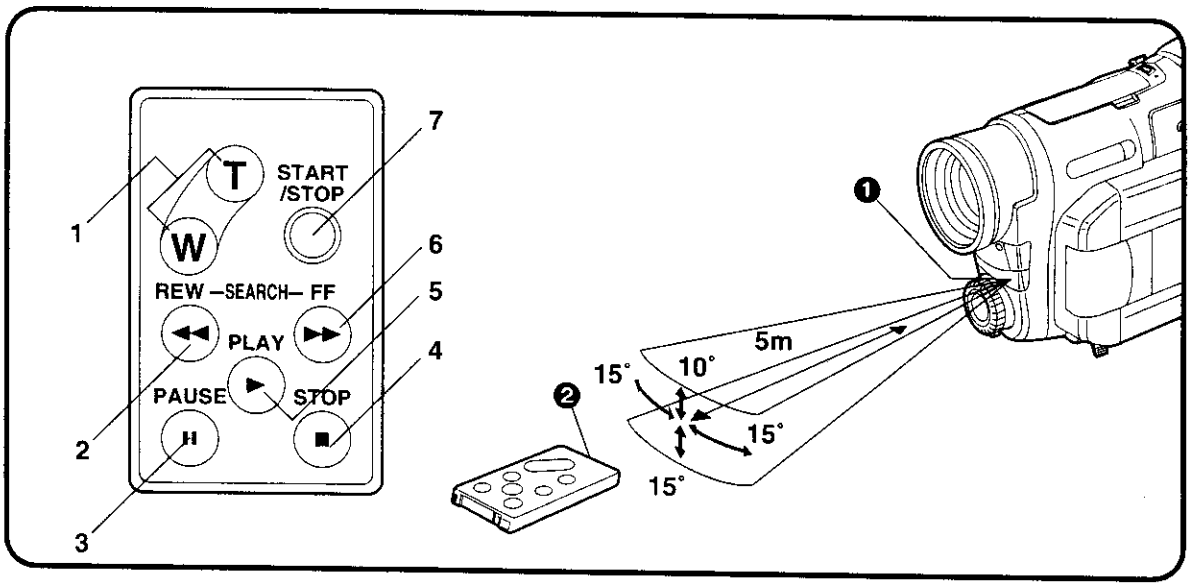
You can adjust the Eyepiece to suit your eyesight so that the picture and indications in the Viewfinder are always clear and sharp.

Note:
If the LCD Monitor is not completely closed, no picture appears in the Viewfinder.

1 Turn out the [POWER] Switch. (The Movie Camera switches on.)

2 While looking into the Viewfinder, turn the Eyepiece Corrector Ring ❶ until the indications in the Viewfinder are clear and easy to read.

Note:
Never aim the Movie Camera with its Viewfinder or Lens directly at the sun; this could damage internal parts of the unit.



10 How to Use the Remote Controller

When you want to take part in the action that you are recording, you can start and pause recording as well as operate the zoom and other functions simply by pressing a button on the Remote Controller. Aim it at the Remote Control Receiver Window ❶ on the front of the Movie Camera and press the corresponding Button.
For details about the functions of the buttons on the Remote Controller, refer to the corresponding pages (listed below).

Notes:

- Do not cover the transmitter window ❷ on the Remote Controller with your hand, etc.
- The Remote Controller may not operate correctly if it is used in direct sunlight, near fluorescent lamps or too close to the Movie Camera.
- When using the Remote Controller outdoors, operating range may become shorter than 5 metres.
- When operating the Zooming Function with the Remote Controller, the zooming speed cannot be changed.
- To prevent inadvertent operation of other infra-red remote-controlled units, this Movie Camera needs to receive each infra-red command 3 times.
  For this reason, there is a slight delay between pressing the [W] or [T] Button on the Remote Controller and the actual operation of the mechanical zoom function on the Movie Camera.

1 **[W • T] Zoom Buttons (➔ 36)**

2 **[◀◀] Button (➔ 18, 19, 23, 26, 27)**

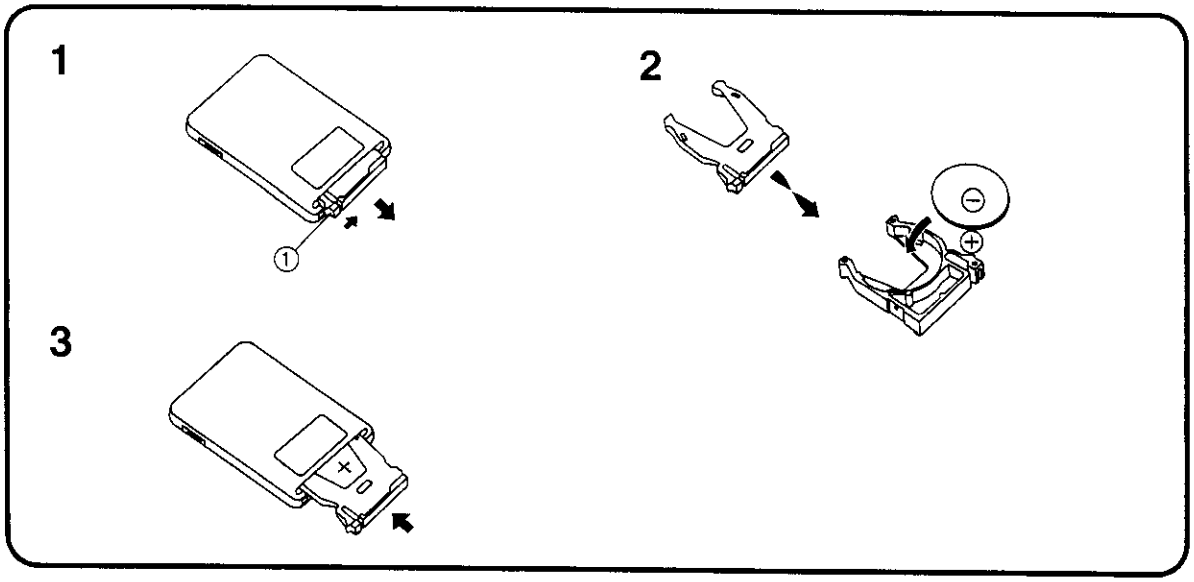
3 **[❚❚] Button (➔ 27)**

4 **[■] Button (➔ 23)**

5 **[▶] Button (➔ 23)**

6 **[▶▶] Button (➔ 19, 26, 27)**

7 **[START/STOP] Button (➔ 17, 20)**



■ How to Insert the Button-Type Battery

1 **Pull out the Battery Holder while pushing the stopper ①.**

2 **Turn the Battery Holder upside down and insert the Battery with the (+) mark facing downward until it locks with a click. Confirm that the polarity is correctly aligned [(−) side must face upward toward the open side of the Battery Holder].**

3 **Insert the Battery Holder into the Remote Controller.**

■ Replacing the Button-Type Battery

The life of the battery is about one year.
Replace the exhausted battery with a new CR2025 Battery.

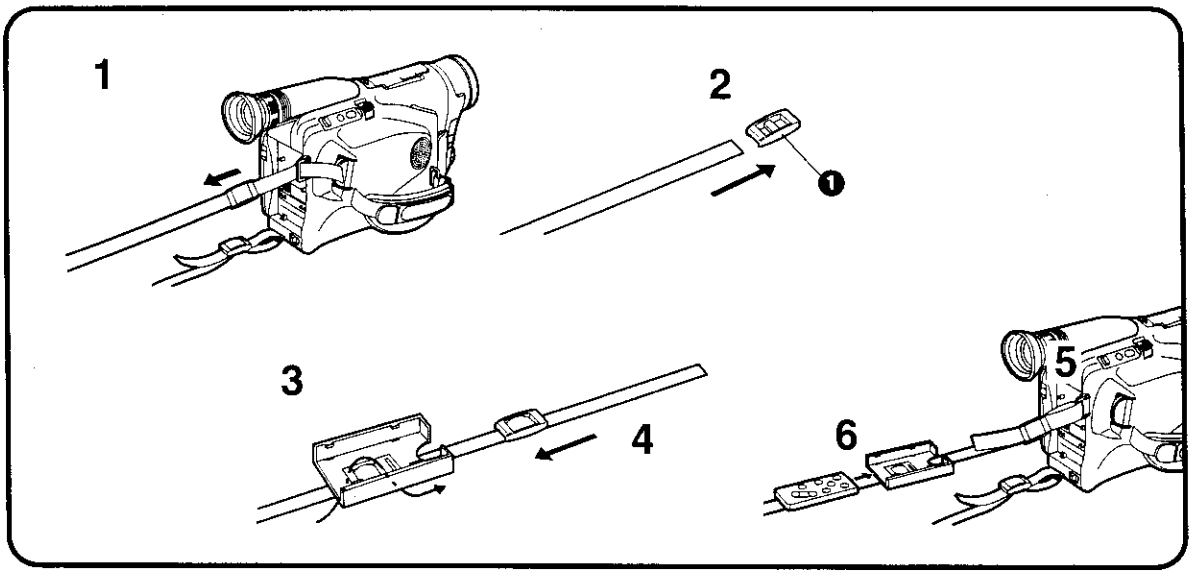
CAUTION

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the equipment manufacturer. Discard used batteries according to manufacturer's instructions.

Information for your safety

WARNING

"THE LITHIUM BATTERY" IS A CRITICAL COMPONENT (TYPE NUMBER CR2025 MANUFACTURED BY PANASONIC).
IT MUST NEVER BE SUBJECTED TO EXCESSIVE HEAT OR DISCHARGE. IT MUST THEREFORE ONLY BE FITTED IN EQUIPMENT DESIGNED SPECIFICALLY FOR ITS USE.
REPLACEMENT BATTERIES MUST BE OF THE SAME TYPE AND MANUFACTURER. THEY MUST BE FITTED IN THE SAME MANNER AND LOCATION AS THE ORIGINAL BATTERY, WITH THE CORRECT POLARITY CONNECTIONS OBSERVED.
DO NOT ATTEMPT TO RE-CHARGE THE OLD BATTERY OR RE-USE IT FOR ANY OTHER PURPOSE IT SHOULD BE DISPOSED OF IN WASTE PRODUCTS DESTINED FOR BURIAL RATHER THAN INCINERATION".



■ **How to Use the Remote Controller Holder**

(To keep the Remote Controller handy when you go out recording)

1 **Remove one end of the Shoulder Strap from the Movie Camera.**

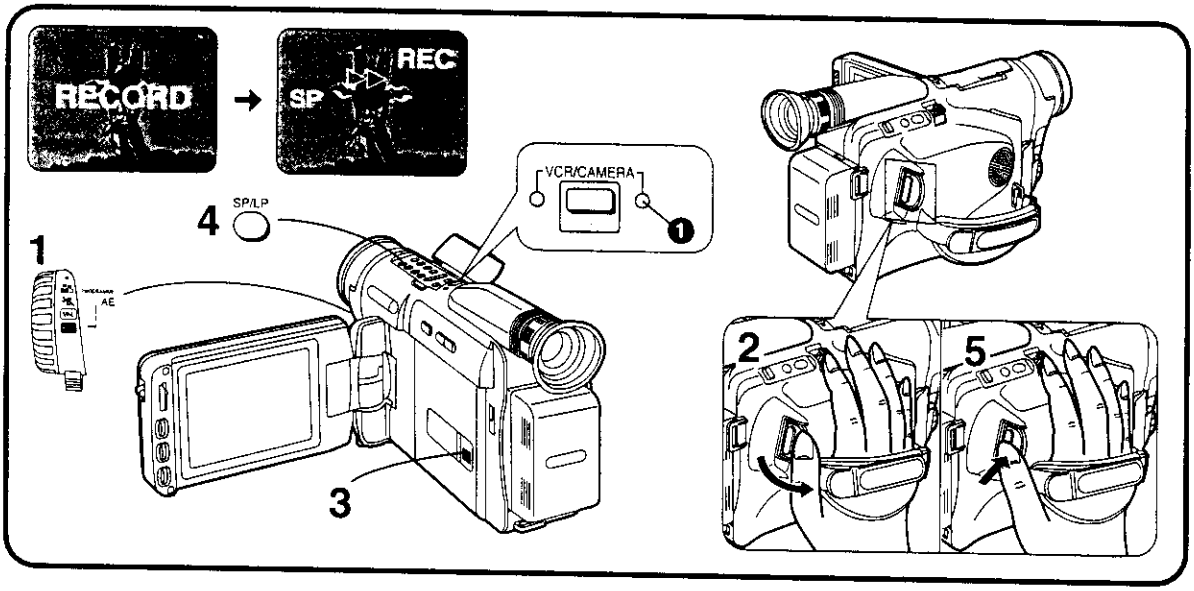
2 **Remove the Shoulder Strap Adjuster ❶.**

3 **Pull the Shoulder Strap in the direction of the arrow through the two slits on the back of the Remote Controller Holder.**

4 **Re-insert the Shoulder Strap Adjuster.**

5 **Re-attach the Shoulder Strap to the Movie Camera.** (➔ 9)

6 **Insert the Remote Controller securely into the Holder.**



Recording

1 How to Record from the Beginning of a Video Cassette

Note:
If you leave the Movie Camera in the Recording Pause Mode for more than 6 minutes, it automatically switches off to protect the tape and to conserve Battery Pack power. This condition is called "Recording Lock" (the tape remains in contact with the video heads).
To resume recording from this condition, turn in the [POWER] Switch (the Movie Camera switches off) and then turn it out again.
If you leave the Movie Camera in the Recording Lock Mode for more than 48 hours, the Recording Lock Mode is cancelled and the Movie Camera automatically switches itself off. You can hear the motor operating when this happens.

After attaching the Battery Pack and removing the Lens Cap, start recording as follows:

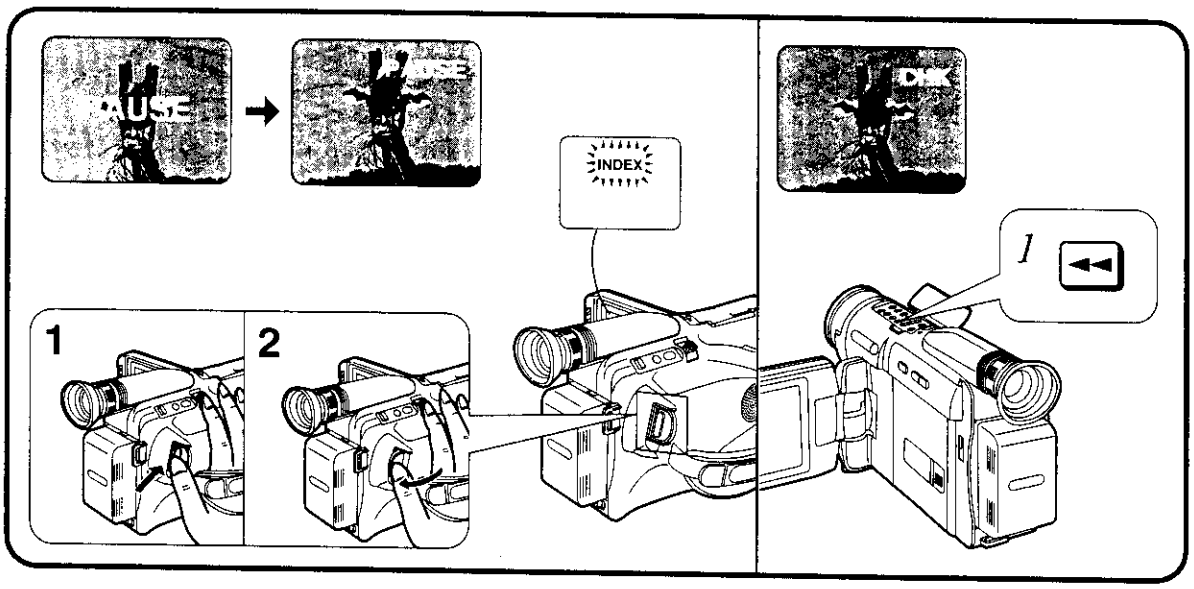
1 Confirm that the [AE] Dial is set to "AUTO".

2 Turn out the [POWER] Switch. (The Movie Camera switches on.)
- The "CAMERA" Indication Lamp ❶ lights.

3 Insert a video cassette with intact erasure prevention tab.
- See "How to Insert the Video Cassette". **(→ 10)**
- The "PAUSE" Indication appears on the LCD Monitor.

4 Press the [SP/LP] Button to select the desired recording speed (SP or LP).
- The "SP" or "LP" Indication appears on the LCD Monitor.

5 Press the Start/Stop Button.
- The Tape Run Indication "▷▷" and the "REC" Indication appear on the LCD Monitor. You have now started recording.
- The Tally Lamp remains lit during recording.



■ **To Pause during Recording**

1 **Press the Start/Stop Button.**

■ **To Stop Recording**

2 **After putting the Movie Camera into the Recording Pause Mode, turn in the [POWER] Switch. (The Movie Camera switches off.)**

■ **Index Signals (VISS)**

Index signals let you use the VHS Index Search or Intro Scan Function when playing back the tape on a VCR equipped with these functions.

In the following cases, an index signal is recorded automatically and the "INDEX" indication flashes briefly in the Viewfinder while an index signal is being recorded:

- When you start recording for the first time after attaching the Battery Pack.
- When you restart recording after exchanging a video cassette or after pressing the [VCR/CAMERA] Button.

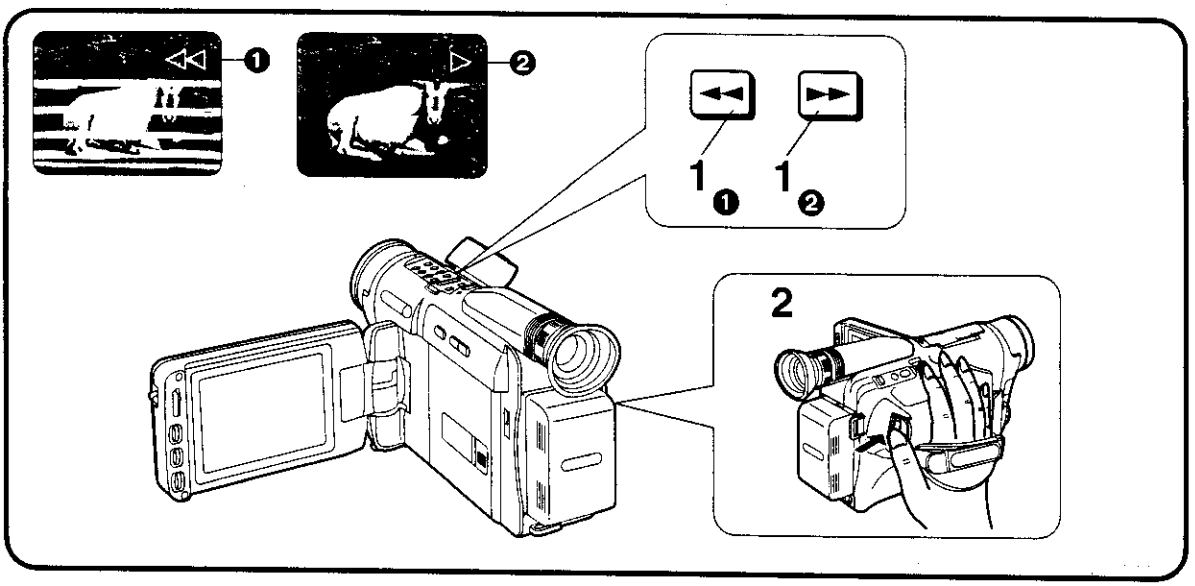
2 How to Check the End of a Recorded Scene

For especially important scenes, use this function from time to time when recording to confirm that recording has been performed correctly.

Check a Recorded Scene while in the Recording Pause Mode.

1 **Look on the LCD Monitor and briefly press the [◄◄] Button at the same time.**

- The "CHK" Indication appears on the LCD Monitor. The final 2 seconds of the last recorded scene are played back on the LCD Monitor before the Movie Camera returns to the Recording Pause Mode. "CHK" means Check.



3 How to Smoothly Join a New Scene to a Previously Recorded Scene (Camera Search Function)

■ How to Add a New Scene at the End of a Previously Recorded Scene

The following operation steps assure smooth scene-to-scene transitions.

In the Recording Pause Mode:

1 Keep pressing the [◀◀] Button (or the [▶▶] Button) for more than 1 second to search for the point where the new recording is to be joined, and release the button as soon as this point is found.

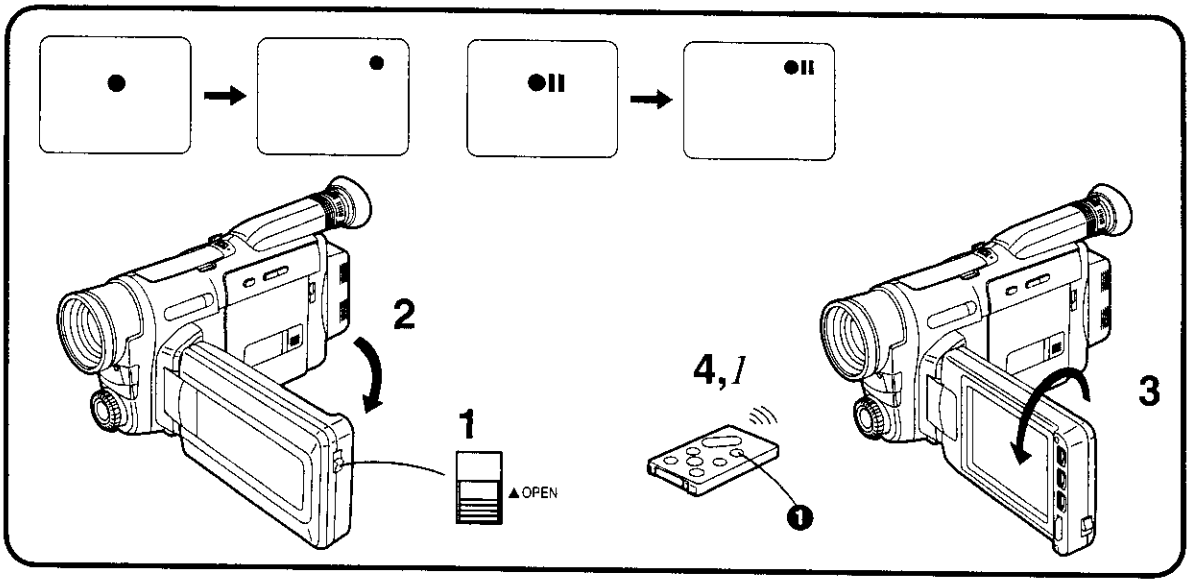
❶ When keeping the [◀◀] Button pressed:
- The Indication "◁◁" appears on the LCD Monitor.
- The scene is played back in reverse direction at 3 times normal speed.

❷ When keeping the [▶▶] Button pressed:
- The Indication "▷" appears on the LCD Monitor.
- The scene is played back in forward direction at normal speed.

2 Press the Start/Stop Button.
- You have started recording the new scene which is smoothly joined to the previously recorded scene.

■ If You Have Taken out the video cassette After Recording the Last Scene:

Reinsert the video cassette. Press the [VCR/CAMERA] Button so that the "VCR" Indication Lamp lights, and then perform the above operation step 1.
After you have located the tape position at which the new recording is to be joined, press the [VCR/CAMERA] Button so that the "CAMERA" Indication Lamp lights. Next, perform the above operation step 2 to start recording the new scene.



4 Recording with the LCD Monitor Facing Forward and Using the Remote Controller

This lets you take part in the action you are recording and at the same time view the picture on the LCD Monitor.

1 Slide the LCD [OPEN] Lever upwards.
- The LCD Monitor pops open.

2 Open the LCD Monitor to the click stop (approx. 90°).

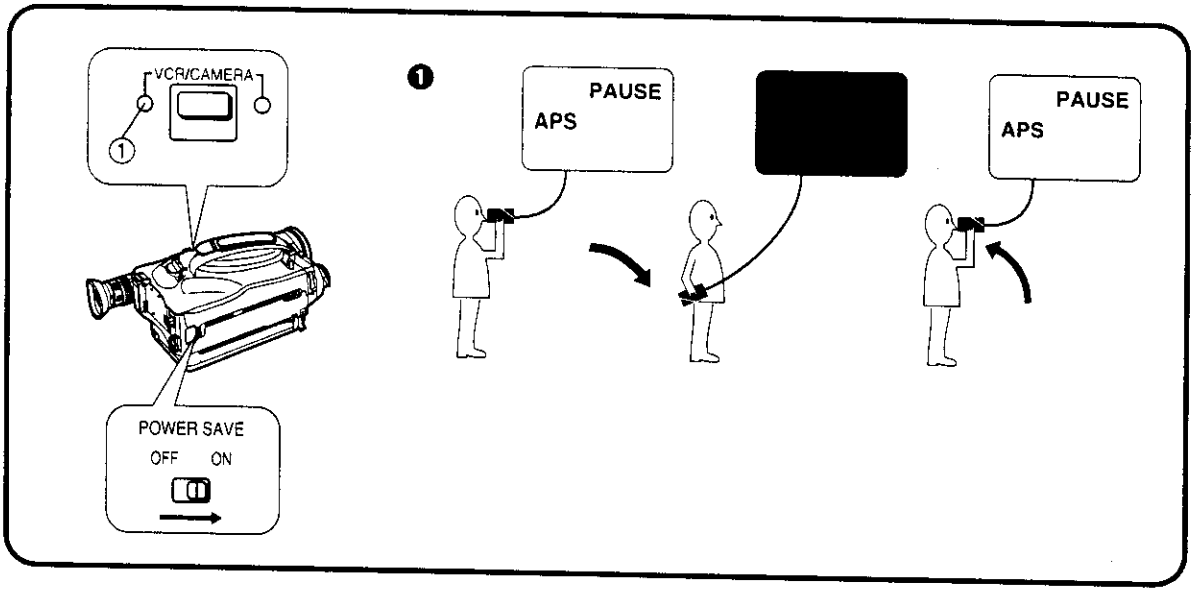
3 Turn the LCD Monitor until it faces forward (approx. 180°).

4 Press the Start/Stop Button ❶.
- The "●" Indication appears on the LCD Monitor.

■ To Pause During Recording

1 **Press the Start/Stop Button ❶.**
- The "●II" Indication appears on the LCD Monitor.

Notes:
- All on screen display, except Recording Mode "●" indication and Recording Pause Mode "●II" indication, are not displayed when the LCD Monitor is facing forward.
- When General Warning/Alarm Indication "!" appears on the LCD Monitor, turn the LCD Monitor so that it faces backward, and the actual warning/alarm indication (→ 64) then appears.



(The following function is only equipped on NV-VX7A and NV-VX3A.)

5 How to Use the POWER SAVE Switch (While the LCD Monitor is open, this function does not become activated.)

If you set the [POWER SAVE] Switch to "ON", the "APS" Indication is displayed in the Viewfinder, and the Auto Power Save Function and the Anti-Ground-Recording Function prevent you from wasting battery power and from the accidentally recording the ground when you forget to stop recording.
When you don't want to use these functions, set the [POWER SAVE] Switch to "OFF".

When you are changing locations between scenes or when you are not planning to record for a longer period of time, it is recommended you turn off the Movie Camera with the [POWER] Switch.

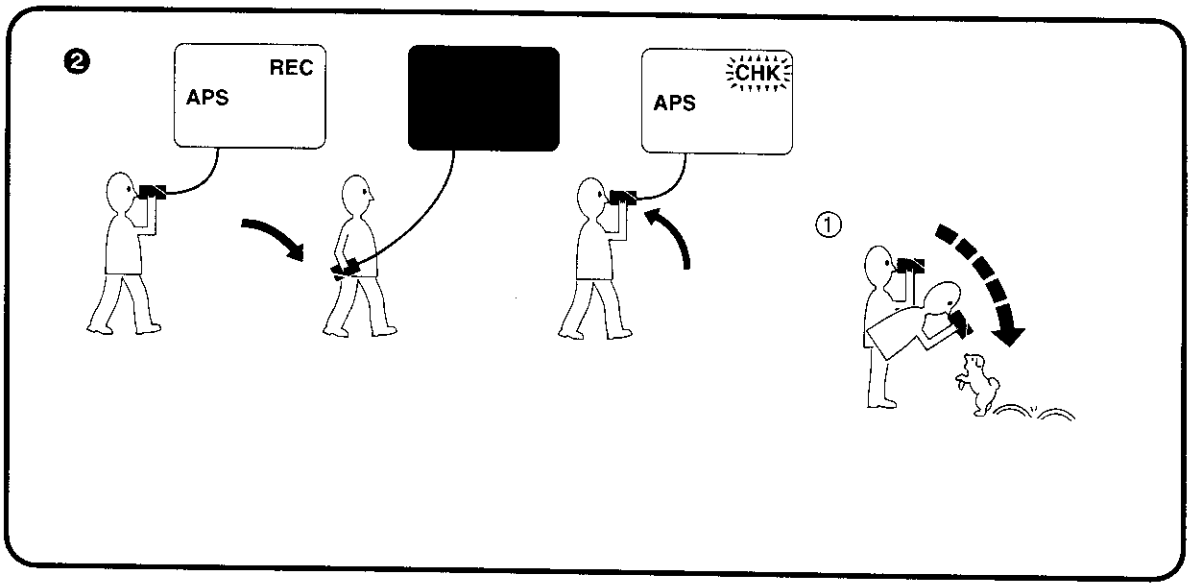
❶ Auto Power Save Function
(in the Recording Pause Mode)
- The Battery Pack can be used longer for recording.
- The Movie Camera automatically prevents recording even when you accidentally press the Start/Stop Button.

When you tilt the Movie Camera downwards by more than about 70° from the normal horizontal recording position for more than a few seconds, the Viewfinder turns off and the "VCR" Indication Lamp ① flashes.

■ To Resume Recording

When you return the Movie Camera to an approximately horizontal position, the Movie Camera is again in the Recording Pause Mode and you can restart recording by pressing the Start/Stop Button.

Notes:
- When the Auto Power Save Function becomes activated, the Auto Focus and the Zoom Motor do not work.
- When you restart the recording after this function has become activated, the Auto White Balance Adjustment may not be precise for the first few seconds.



❷ Anti-Ground-Recording Function
(in the Recording Mode)
- The Battery Pack can be used longer for recording.
- The Movie Camera automatically switches over to the Recording Pause Mode to stop the unintentional recording when you forget to press the Start/Stop Button at the end of a scene.

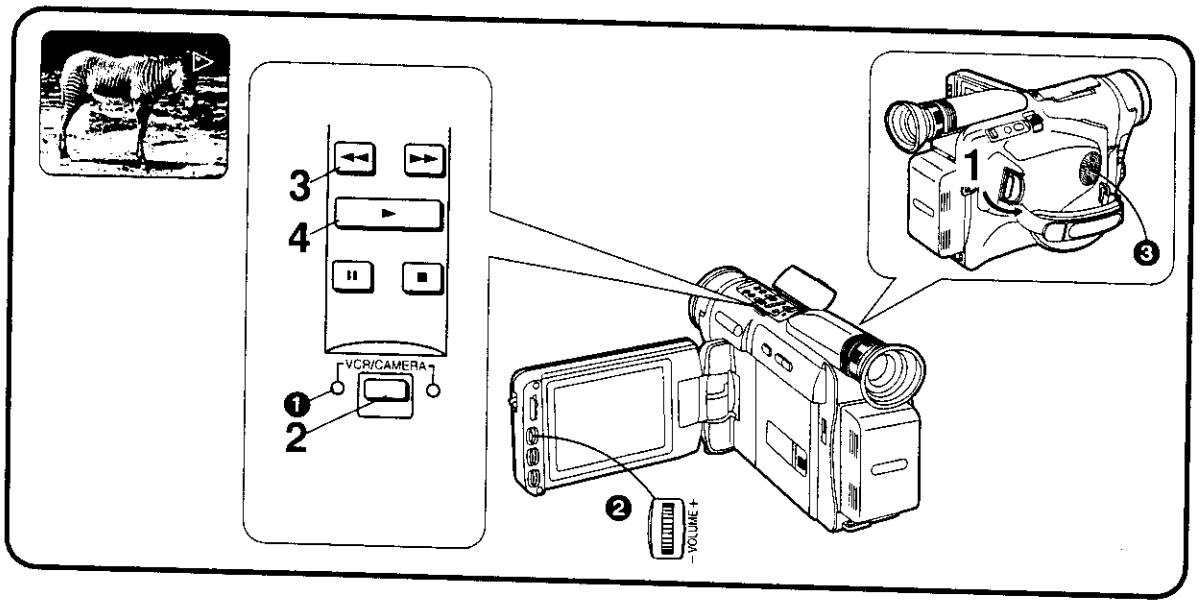
When you tilt the Movie Camera downwards by more than about 70° from the normal horizontal recording position for more than a few seconds, and:
1) walk with the Movie Camera held in the hand or;
2) tilt the Movie Camera quickly downwards when not walking;

the Viewfinder turns off and the "VCR" Indication Lamp flashes.

■ To Resume Recording

When you return the Movie Camera to an approximately horizontal position, the "CHK" (=check) Indication flashes in the Viewfinder. Since the recording may have continued for several seconds, rewind the tape a little using the Camera Search Function (→ 19) to locate the exact end of the last intentionally recorded scene, and then start recording again.

Notes:
- The Anti-Ground-Recording Function is designed so that it does not become activated when you tilt the Movie Camera slowly downwards during recording, as shown above ①.
- This function is not intended to replace the manual stopping of recording.
- When this function becomes activated, the Auto Focus and the Zoom Motor do not work.
- When you restart recording after this function has become activated, the Auto White Balance Adjustment may not be precise for the first few seconds.



Playback

1 How to Play Back Via the LCD Monitor

The playback of the recorded tape can be watched on the LCD Monitor.

1 Turn out the [POWER] Switch. (The Movie Camera switches on and the "CAMERA" Indication Lamp lights.)

2 Press the [VCR/CAMERA] Button.
- The "VCR" Indication Lamp ❶ lights instead of the "CAMERA" Indication Lamp.

3 Press the [◄◄] Button.
- The tape starts to rewind.
- When the tape reaches the beginning, the rewinding automatically stops.

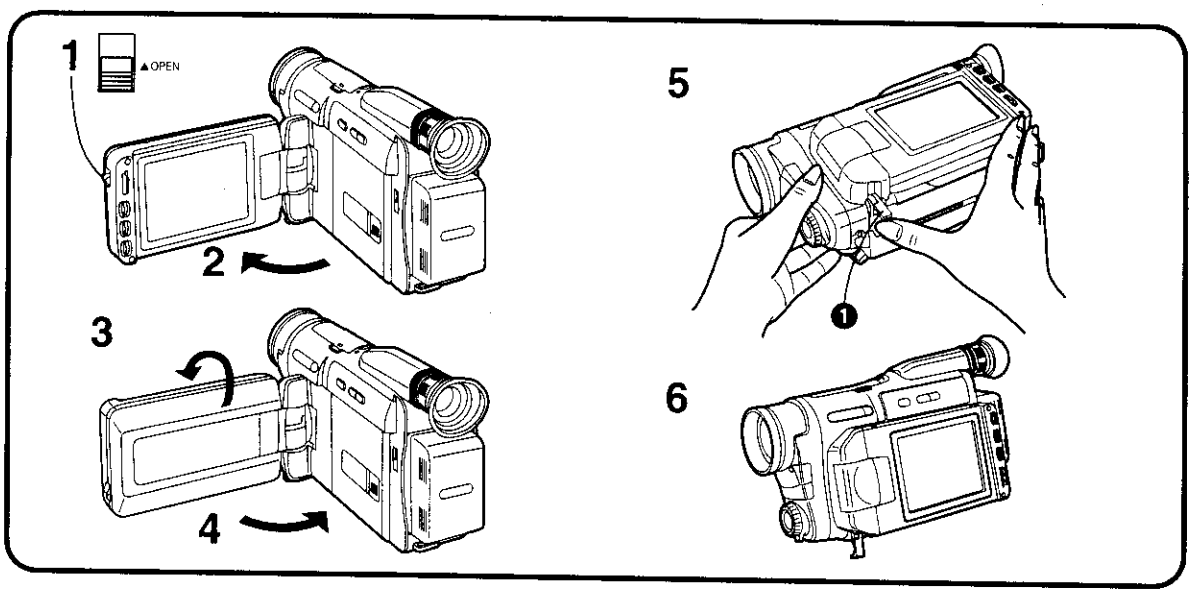
4 Press the [►] Button.
- Playback starts.
  The Playback Indication "▷" appears on the LCD Monitor.
- When the tape reaches the end, it automatically rewinds to the beginning.

■ Adjusting the Volume of the Speaker

The volume of the sound can be adjusted with the [VOLUME] Control ❷.
- Do not cover the Speaker ❸ during playback.
- Because the speaker contains a magnet, do not bring a video cassette near the speaker. It could adversely influence the recorded content.

■ To Stop Playback

Press the [■] Button.



2 Viewing Playback on the LCD Monitor with the Movie Camera Placed on a Table

1 **Slide the LCD [OPEN] Lever upwards.**
- The LCD Monitor pops open.

2 **Open the LCD Monitor to the click stop (approx. 90°).**

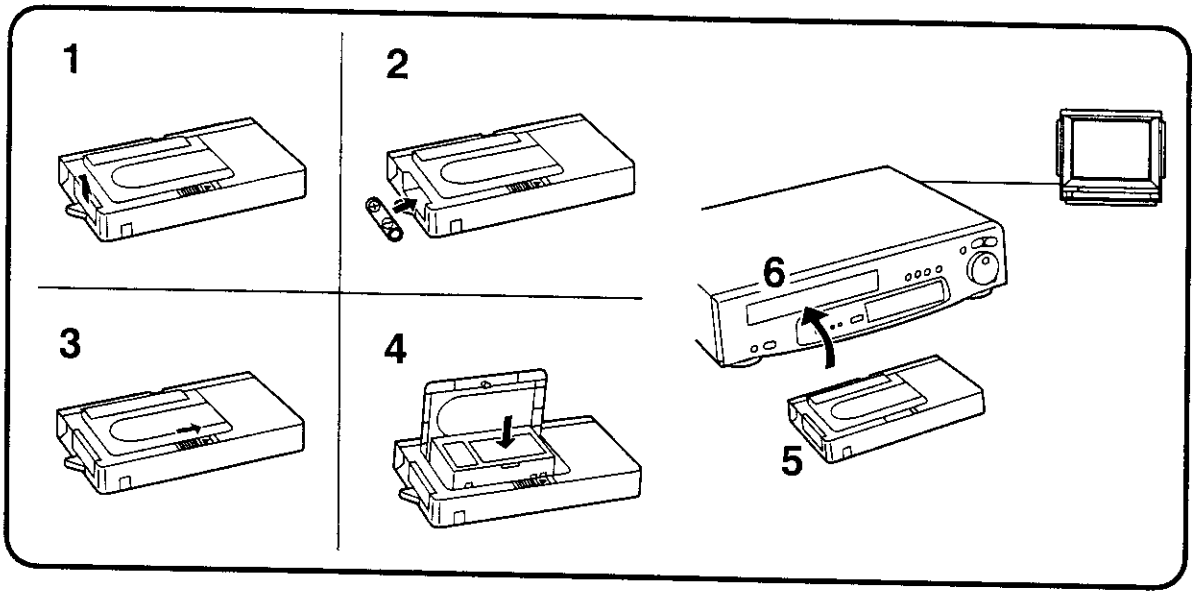
3 **Turn the LCD Monitor so that it faces forward (approx. 180°).**

4 **Close the LCD Monitor.**

5 **Extend the LCD support Leg ❶.**

6 **Place the Movie Camera on a flat, stable surface for playback.**

Note:
If you use the Remote Controller to operate the Movie Camera, use it within approx. 1 meter from the Movie Camera.



3 How to Play Back on a VCR (Using the Supplied Cassette Adaptor)

Notes:

1. Never insert the empty Cassette Adaptor into a VCR unless it is loaded with a video cassette.
2. Do not insert the Cassette Adaptor into a VCR and take it out again without running the tape, because this could loosen the tape.
3. When you load the video cassette into the Cassette Adaptor, be careful not to touch the tape. After use, take out the video cassette from the Cassette Adaptor.
4. For optimum picture quality, it may be necessary to adjust the tracking control on the VCR.

1 **Push the Battery Compartment Cover upward and remove it.**

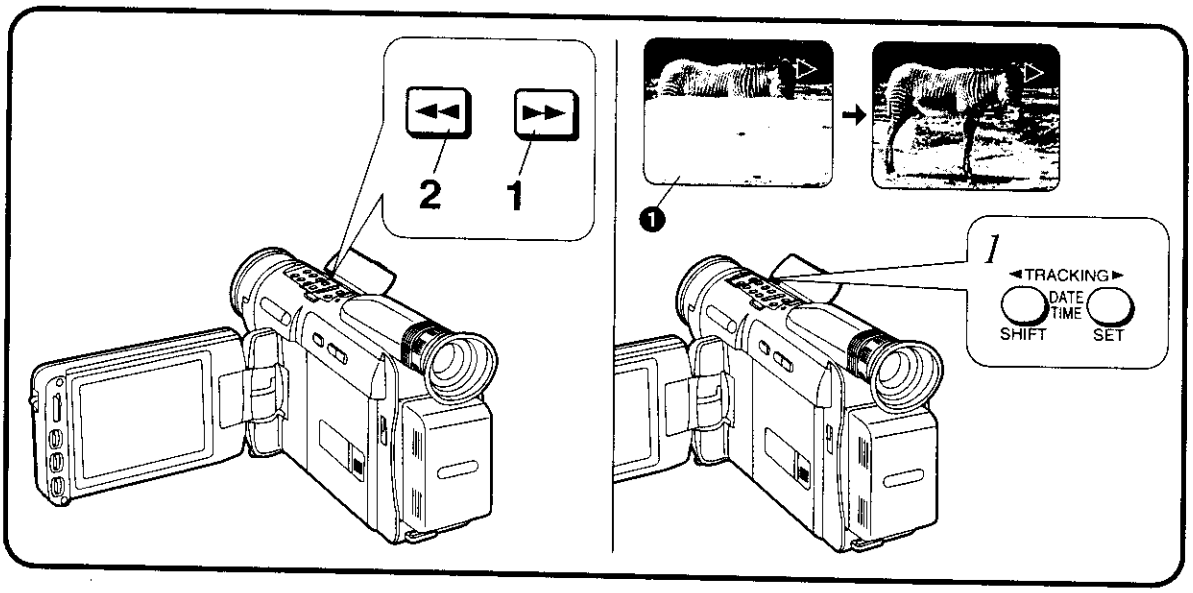
2 **Insert the supplied battery and then re-attach the Battery Compartment Cover.**

3 **Slide the Open Lever in the direction of the arrow.**

4 **Insert the recorded video cassette and close the Top Cover.**

5 **Insert the Cassette Adaptor into the VCR.**

6 **Start playback on the VCR.**



4 How to Rewind or Fast-Forward the Tape

Perform the following operations with the Movie Camera in the VCR Mode ("VCR" Indication Lamp lights) and in the Stop Mode.

■ For Fast-Forwarding

1 Press the [►►] Button to wind the tape forward at high speed.

- When the tape reaches the end, it automatically rewinds to the beginning.

■ For Rewinding

2 Press the [◄◄] Button to rewind the tape at high speed.

- When the tape reaches the beginning, the rewinding automatically stops.

5 How to Eliminate Picture Distortions by Adjusting the Tracking

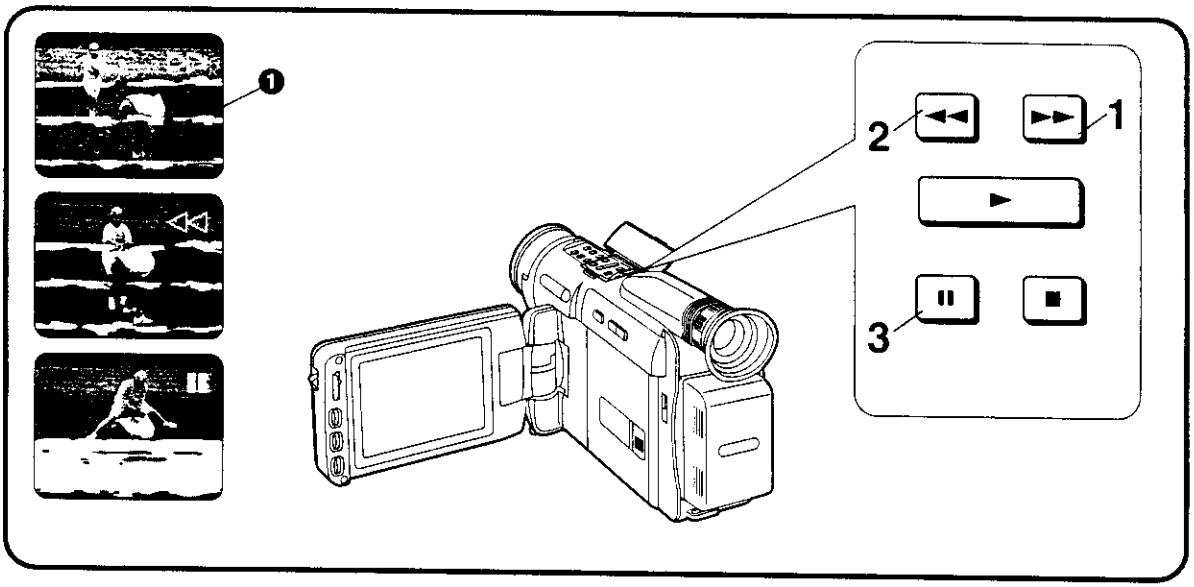
■ Purpose of the Tracking Adjustment

When playing back a recorded tape, especially a video cassette recorded on another Movie Camera, horizontal white noise bars ❶ may appear in the picture. This occurs when the video heads don't precisely trace the recorded video tracks during playback. Adjusting the tracking pattern of the heads is called tracking adjustment.

1 **Press both the [◄ TRACKING] and the [TRACKING ►] Button simultaneously.**

Note:

If pressing both buttons simultaneously does not improve the picture quality, adjust by pressing the [◄ TRACKING] or [TRACKING ►] Button individually. (It may not be possible to remove the noise bars completely.)



6 How to Use the Cue, Review and Still Playback Functions During Normal Playback

Notes:

1. The sound is played back only during normal playback.
2. In the Cue, Review and Still Playback Modes, horizontal noise bars ❶ appear in the picture, or the picture may become black and white or distorted. However, this is normal and not an indication of a malfunction.
3. The horizontal noise bars have a different pattern in the SP mode and LP mode.
   The illustrations above show the noise bar pattern of the LP mode.

■ For Cue Playback

1 Keep pressing the [▶▶] Button.

- The Fast Forward/Cue Mode Indication "▷▷" appears on the LCD Monitor.
- To resume normal playback, release the [▶▶] Button.

■ For Review Playback

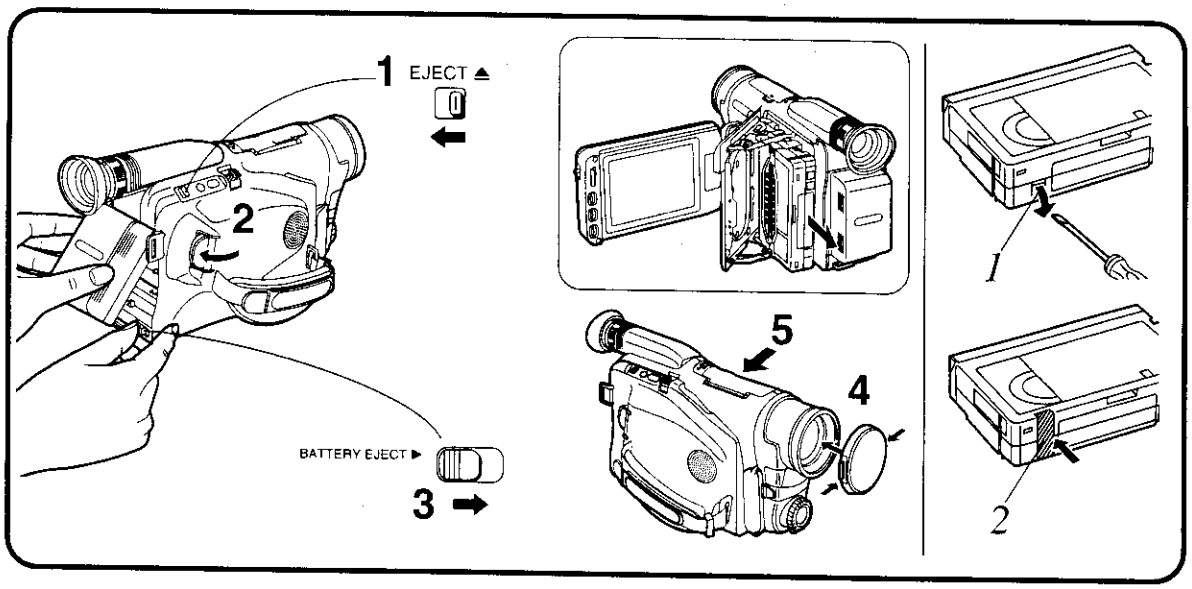
2 Keep pressing the [◀◀] Button.

- The Rewind/Review Mode Indication "◁◁" appears on the LCD Monitor.
- To resume normal playback, release the [◀◀] Button.

■ For Still Playback

3 Press the [❚❚] Button.

- The Still Playback Mode Indication "❚❚" appears on the LCD Monitor.
- To Resume Normal Playback, press the [❚❚] Button again.
- If you leave the Movie Camera in the Still Playback Mode for about 6 minutes, it switches over to the Stop Mode to protect the tape and the video heads.



After Use

1 **Slide the [EJECT ▲] Lever in the direction of the arrow and remove the video cassette.**

2 **Turn in the [POWER] Switch. (The Movie Camera switches off.)**

3 **Slide the [BATTERY EJECT ▶] Lever in the direction of the arrow and remove the Battery Pack.**

4 **Attach the Lens Cap.**

5 **Close the LCD Monitor.**

■ **When You Are Not Going to Use the Movie Camera for a Long Time**

Turn on the Movie Camera occasionally to prevent malfunction.

How to Prevent Accidental Erasure of Recordings

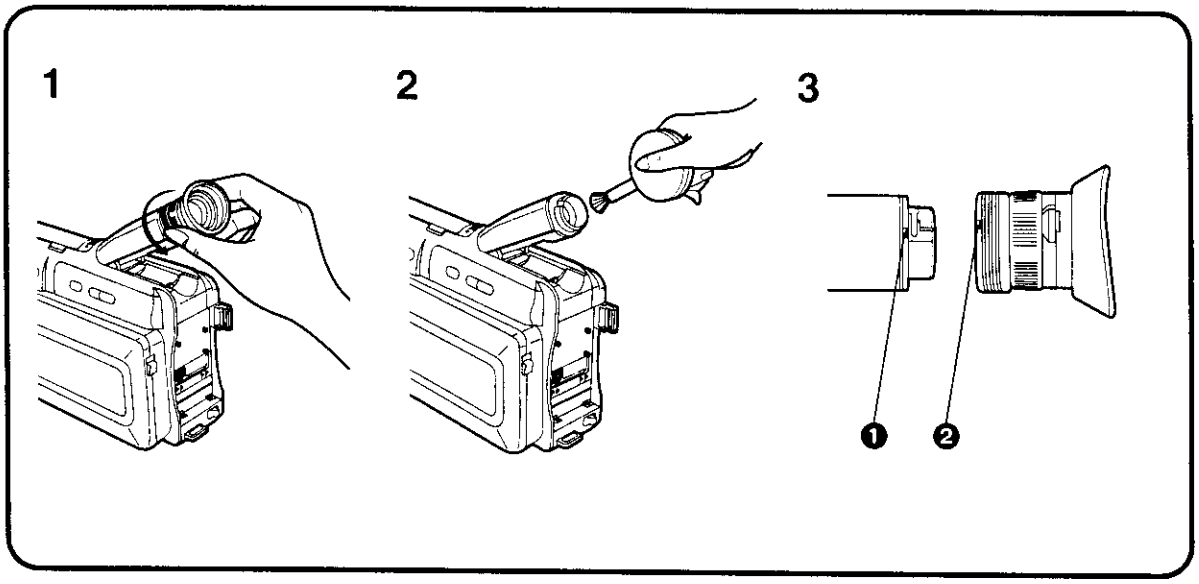
Recording on a previously recorded tape erases the previously recorded scenes and sound. To protect important recordings against accidental erasure:

1 **Break off the tab with a screwdriver.**

- If the tab has been removed, recording on this video cassette is no longer possible. (Some cassettes have sliding-type tabs.)

■ **Recording again onto a video cassette with Removed Tab**

2 **Firmly cover the hole where the tab was removed with two layers of adhesive tape (to substitute for the broken out tab).**



How to Clean the Movie Camera

1 How to Clean the Viewfinder

1 **Turn the Viewfinder counterclockwise and pull it off.**

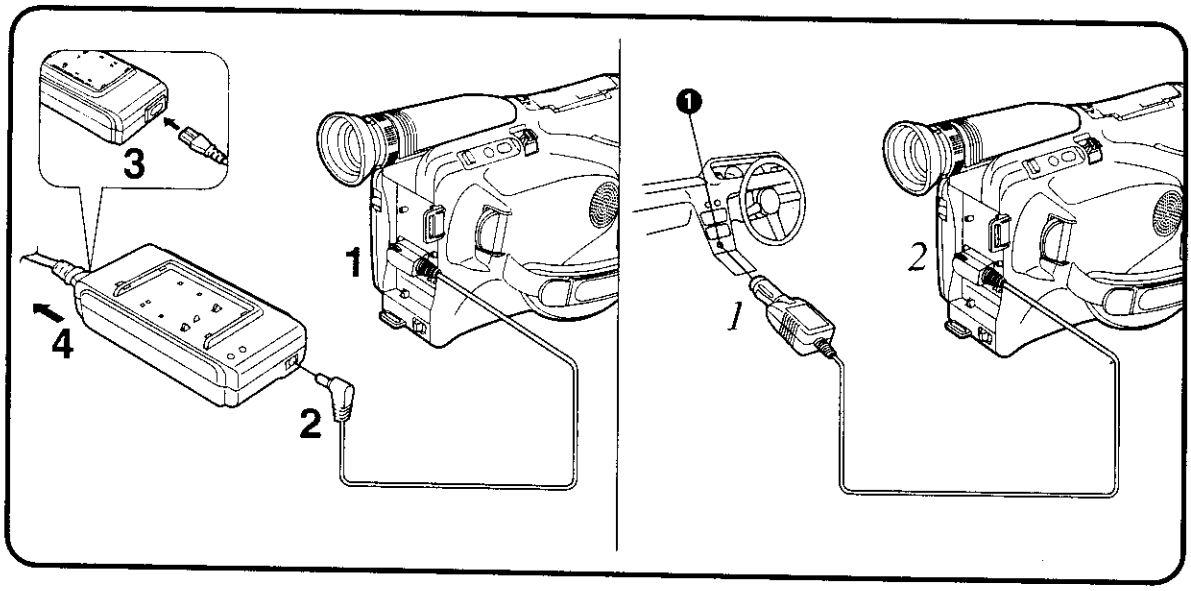
2 **Remove dust with a blower brush (not supplied).**

3 **To re-attach the Viewfinder, insert it so that the marks ❶ and ❷ are aligned, and then turn the Viewfinder clockwise.**

2 How to Clean the Movie Camera Body, Lens and LCD Monitor

Notes:

1. Do not use benzine, thinner or other chemicals for cleaning, because they could change the colour and damage the surface of the camera body.
2. When using a chemically treated cloth for cleaning, carefully follow the instructions for its use.
   - Wipe the Movie Camera with a clean, dry cloth. Never use cleaning fluid or other chemicals.
   - Clean the lens and the LCD Monitor only with a blower brush for cameras or supplied cleaning tissue.



Power Supply

1 How to Use the AC Adaptor as Power Supply Unit

Note:
When using the AC Adaptor to supply the Movie Camera with power, do not attach the Battery Pack to the AC Adaptor.

1 **Connect the DC Input Cable to the [DC IN] Socket on the Movie Camera.**

2 **Connect the other end of the cable to the DC Output Socket on the AC Adaptor.**

3 **Connect the AC Mains Cable to the AC Adaptor.**

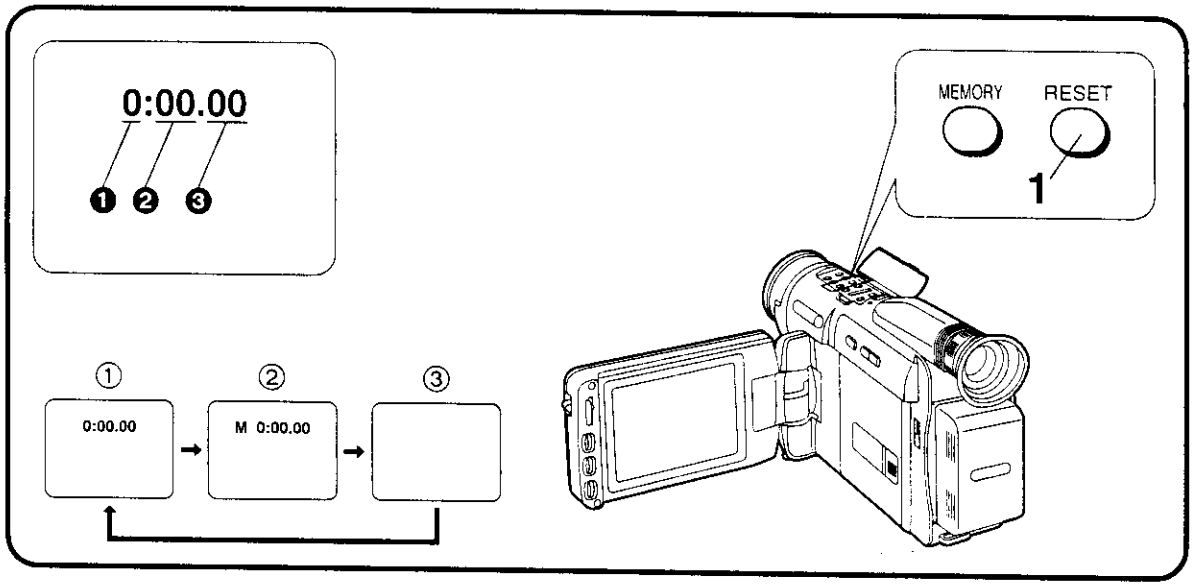
4 **Connect the other end of the AC Mains Cable to an AC mains socket.**

2 How to Use the Car Battery Cord (optional)

Notes:
1. The Car Battery Cord can only be used with 12 V DC negative-grounded vehicles.
2. Do not start the car engine while the Movie Camera is powered by the car battery.
3. If the voltage drops suddenly, e.g. when the heater in the car is turned on, the Movie Camera automatically turns off to protect itself. Wait about 10 seconds before turning it on again.

1 **Start the engine and then plug the Car Battery Cord into the cigarette lighter socket ❶.**

2 **Connect the other end of the cord to the [DC IN] Socket on the Movie Camera.**



How to Use the Tape Counter Indication

■ For Checking the Elapsed Tape Time

Notes:

1. The Tape Counter Indication does not change during playback of parts of the tape on which no recording has been made.
2. Taking out the video cassette or removing the Battery Pack automatically resets the Tape Counter Indication to "0:00.00".
3. When the tape is rewound further than the tape counter position "0:00.00", the minus sign "–" appears in front of the Tape Counter Indication.

The Tape Counter Indication on the LCD Monitor shows the time in hours ❶, minutes ❷ and seconds ❸.

Resetting the Tape Counter Indication to "0:00.00" by pressing the [RESET] Button before starting to record makes it easy to keep track of the elapsed recording time.

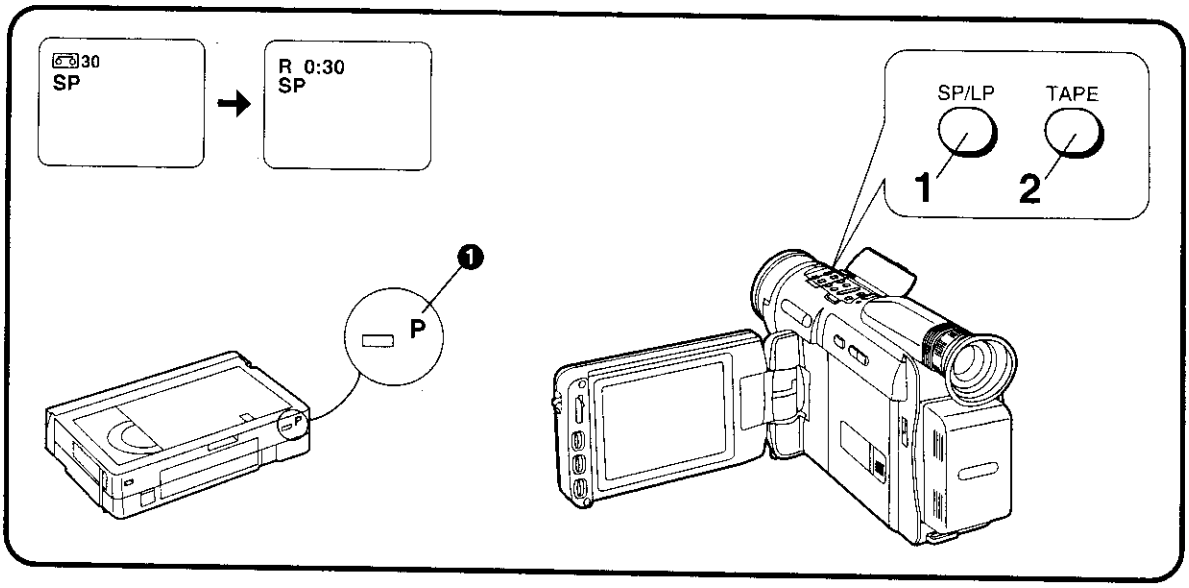
1 Press the [RESET] Button.

■ The Tape Counter Indication Can Be Changed as Follows:

When you press the [MEMORY] Button repeatedly, the Tape Counter Indication changes in the order of the illustrations ①, ②, ③ above.

■ Memory Stop Function

When the Memory Indication "M" is displayed, the tape stops automatically at the "0:00.00" position during rewinding or fast-forwarding of the tape.



How to Confirm the Remaining Tape Time

Notes:

1. The Remaining Tape Time is not displayed until you start recording or playing back.
2. While the Movie Camera calculates the Remaining Tape Time, the "R" Indication flashes on the LCD Monitor. "R" means Remaining.
3. When the Remaining Tape Time becomes less than 2 minutes, the "R" Indication and the Remaining Tape Time Indication start to flash.
4. When you use a video cassette bearing the "P" mark ❶ or an S-VHS-C video cassette, the Tape Counter Indication may not be very precise.

1 Press the [SP/LP] Button to select the desired recording speed (SP or LP).

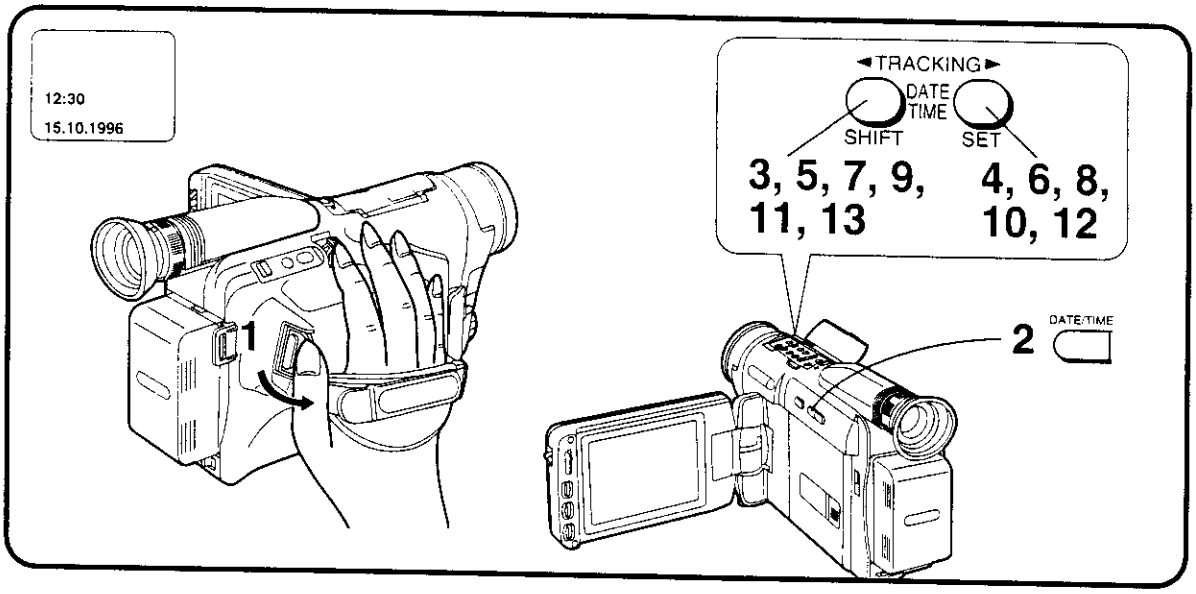
2 Press the [TAPE] Button.

- Select the Tape Length Indication ("30", "45" or "60") that matches the video cassette which you are using.
- During recording and playback, the remaining tape time is displayed in minutes instead of the Tape Length Indication "30", "45" or "60".

■ To Check the Tape Length of the Video Cassette Being Used While the Remaining Tape Time is Displayed:

Press the [TAPE] Button.

- The Tape Length Indication "30", "45" or "60" is displayed for approx. 2 seconds before the Remaining Tape Time Indication is displayed once more.



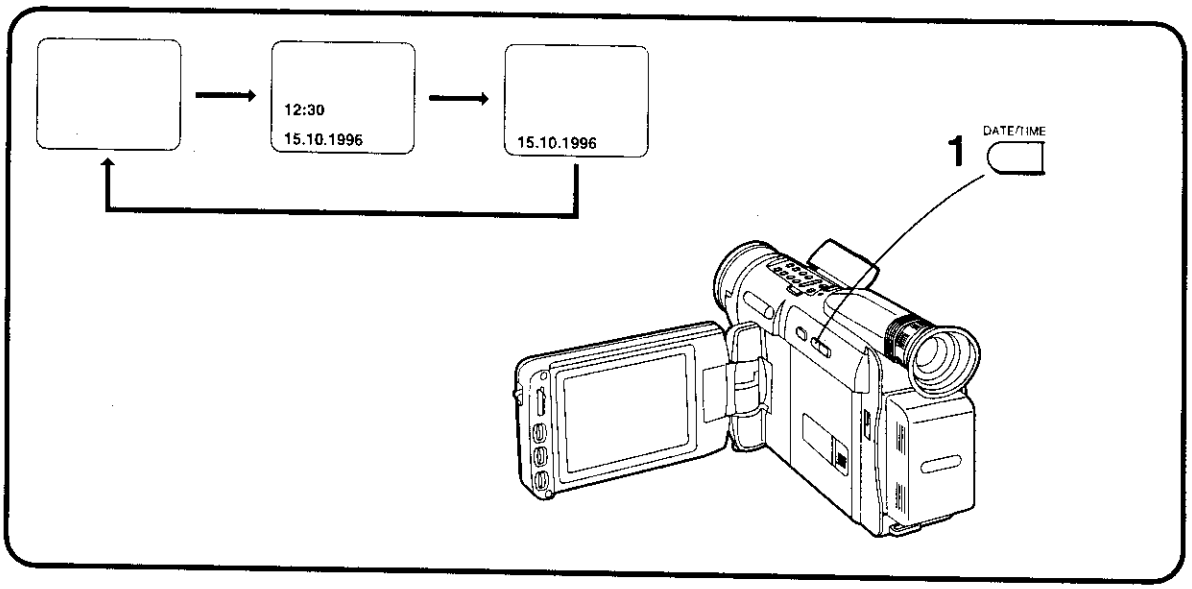
How to Record the Date and Time During Recording

1 How to Set the Date and Time

For example:
To set the clock to 15th October 1996, 12:30.

1. **Turn out the [POWER] Switch. (The Movie Camera switches on.)**
2. **Press the [DATE/TIME] Button.**
   - The Date Indication appears.
3. **Keep pressing the [SHIFT] Button until the "Year" portion flashes.**
4. **Press the [SET] Button to set to "1996".**
5. **Press the [SHIFT] Button to make the "Month" portion flash.**
6. **Press the [SET] Button to set to "10".**
7. **Press the [SHIFT] Button to make the "Day" portion flash.**
8. **Press the [SET] Button to set to "15".**
9. **Press the [SHIFT] Button to make the "Hour" portion flash.**
10. **Press the [SET] Button to set to "12".**
11. **Press the [SHIFT] Button to make the "Minute" portion flash.**
12. **Press the [SET] Button to set to "30".**
13. **Press the [SHIFT] Button.**
    - The operation of the clock starts.

When you keep pressing the [SET] Button, the figures change more quickly.



■ **If you Make a Mistake During Setting, Restart from Step 3.** (→ 33)

■ **Changing the Figures of the Date/Time Indication**

By pressing the [SET] Button repeatedly, the Date/Time Indication can be changed in the following order:

Year:	**1990**→1991→ . . . . . →2089→**1990**→...
Month:	**1**→2→ . . . . . →12→**1**→...
Day:	**1**→2→ . . . . . →31→**1**→...
Hour:	**0**→1→ . . . . . →23→**0**→...
Minute:	**00**→01→ . . . . . →59→**00**→...

2 How to Insert and Delete the Date and Time

You can insert (and delete) the Date and Time Indications during recording and when in the Recording Pause Mode.

1 Press the [DATE/TIME] Button.

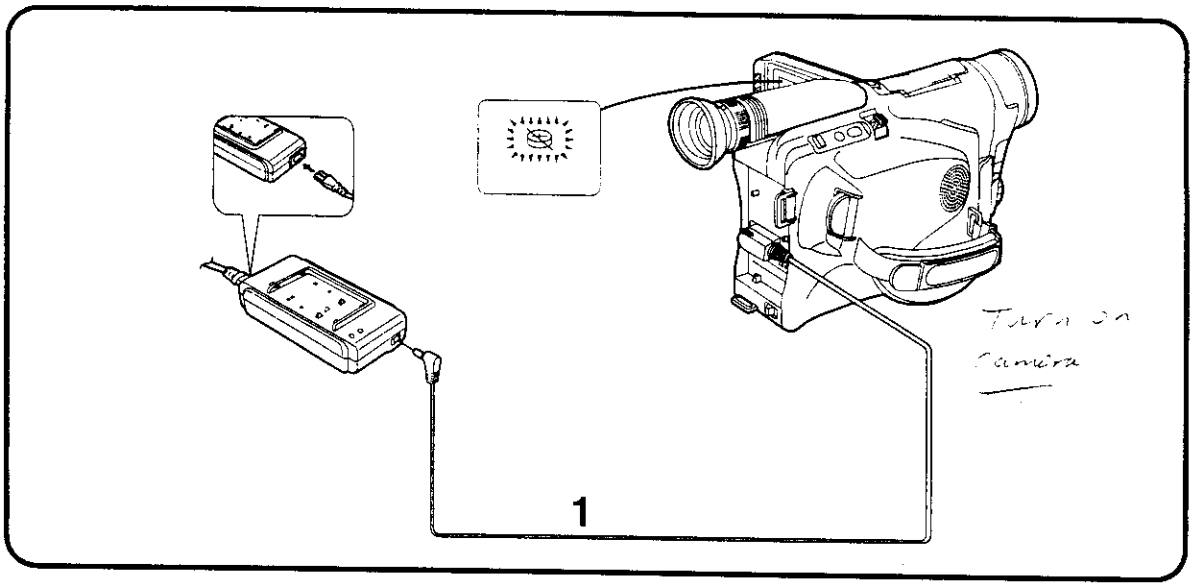
- By pressing this button repeatedly, you can change the Date/Time Indication on the LCD Monitor in the following order. Select the desired indication.

12:30
→No indication→15.10.1996→15.10.1996→

Date and Time　　Date only

Note:

When you turn the Movie Camera off while the Date/Time Indication is displayed on the LCD Monitor, the Date/Time Indication will not appear on the LCD Monitor when you turn the Movie Camera on again.



3 The Built-in Lithium Battery

A built-in rechargeable lithium battery maintains the operation of the built-in clock when the Movie Camera is turned off. When the Movie Camera is in operation, this battery is charged automatically.
However, if the Movie Camera is not used for a very long time, the lithium battery can become exhausted. In this case, the "⊛" Indication on the LCD Monitor or in the Viewfinder flashes.

■ How to Charge the Built-in Lithium Battery

If the "⊛" Indication on the LCD Monitor flashes for approx. 10 seconds when you turn the Movie Camera on, the lithium battery is exhausted and must be charged as follows:

1 Connect the Movie Camera to the AC Adaptor and leave it in this condition for several hours. It is not necessary to turn the Movie Camera on.

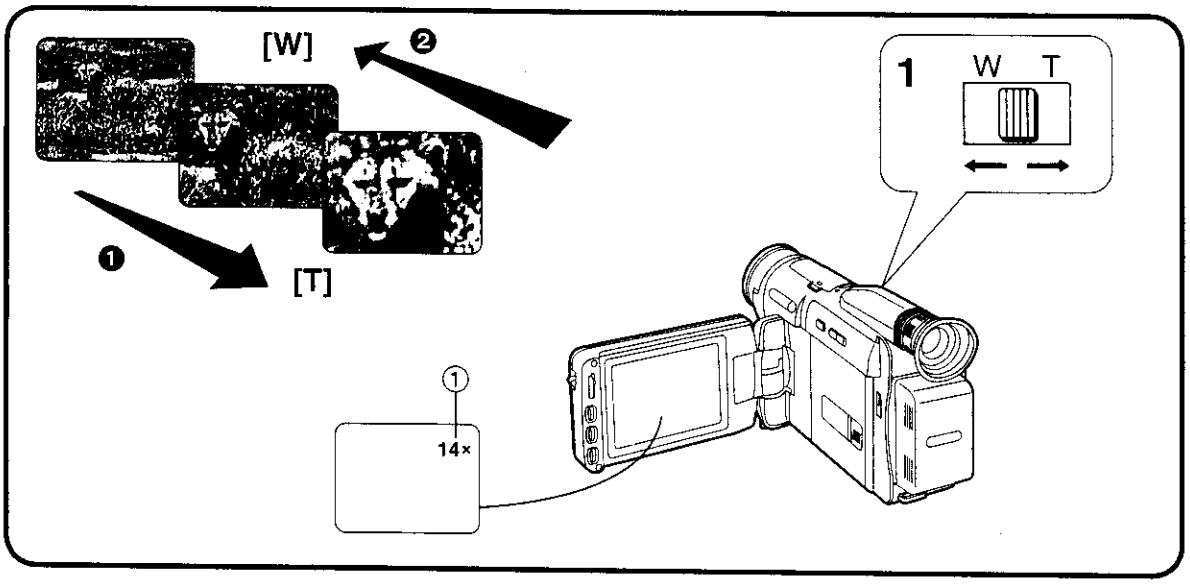
(The following function is only equipped on NV-VX7A and NV-VX3A.)

- After the lithium battery has been charged for approx. 4 hours, it can maintain the operation of the clock for approx. 3 months.

(The following function is only equipped on NV-VX5A and NV-VX1A.)

- After the lithium battery has been charged for approx. 8 hours, it can maintain the operation of the clock for approx. 3 months.
- After charging the lithium battery, the "⊛" Indication still flashes to remind you to set the date and time as explained on page 33.

WARNING
THE LITHIUM BATTERY IN THIS UNIT MUST ONLY BE REPLACED BY QUALIFIED PERSONNEL. IF THIS IS NECESSARY, CONTACT THE PANASONIC CUSTOMER CARE CENTRE ON 132600 FOR YOUR NEAREST AUTHORISED SERVICE CENTRE.



Power Zooming

Notes:

1. The zoom range extends from 1× (wide-angle) to 14× (tele).
2. The zooming speed changes according to how far you push the [W • T] Zoom Lever (the farther it is pushed toward either the "W" or "T" position, the faster the zooming speed becomes).
3. In the maximum telephoto setting (when you have zoomed in), you can adjust the focus only for subjects that are more than 1.5 m from the lens.

1 Push the [W • T] Zoom Lever toward "T" or "W".

- The Zoom Magnification Indication ① is displayed on the LCD Monitor.

■ Making a Subject Gradually Larger (Zooming in ❶)

Push the [W • T] Zoom Lever toward "T".

■ Making a Subject Gradually Smaller (Zooming Out ❷)

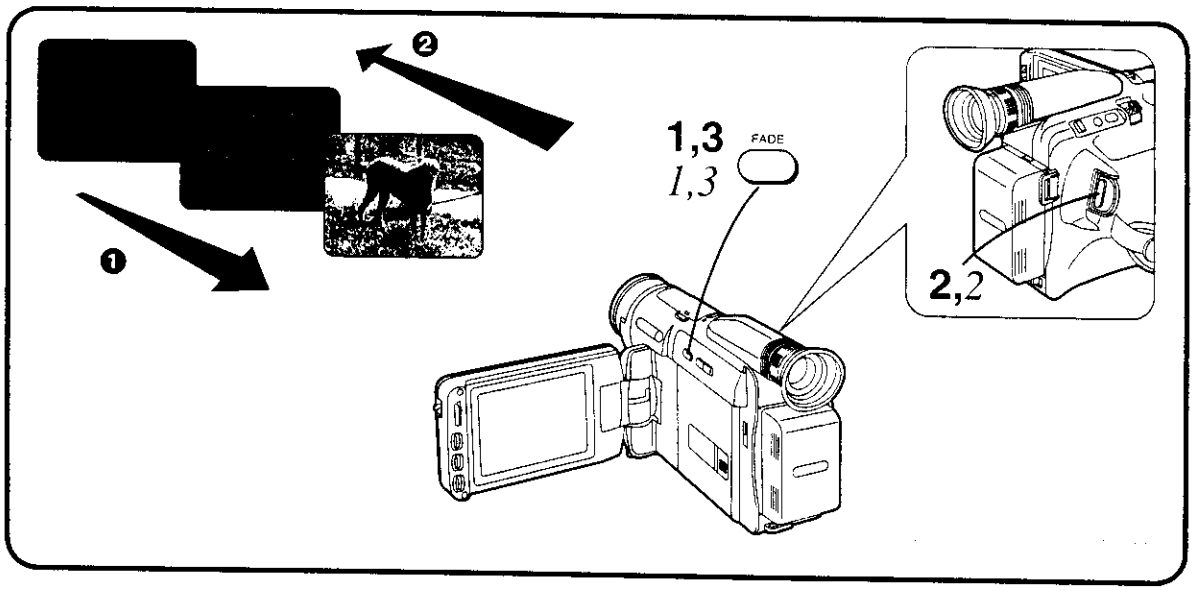
Push the [W • T] Zoom Lever toward "W".

■ Using the Macro Close-up Function

After keeping the [W • T] Zoom Lever pressed toward "W" to zoom to the maximum wide-angle setting, the Movie Camera can automatically focus subjects down to a minimum distance of only 5 mm between lens and subject.

Notes:

1. As the depth of field is very small in this mode, even slight camera movements can cause the subject to go out of focus. Therefore, it is recommended to use a tripod (optional).
2. When recording pictures in a photo album or a similar situation with insufficient lighting, use a Video DC Light (optional).



How to Fade in and Fade out Picture and Sound

■ Using the Fade-in and Fade-out Functions

The fading in ❶ and fading out ❷ of picture and sound can easily be performed with a single button.

Fade-in

At the beginning of a video film, etc. fading in is often used. For example, after recording the title, starting the first scene with the Fade-in Function is very effective.

1 While in the Recording Pause Mode, keep pressing the [FADE] Button.

- The picture on the LCD Monitor disappears gradually. When it has disappeared completely:

2 While keeping the [FADE] Button pressed, press the Start/Stop Button to start recording.

3 After approx. 3 seconds, release the [FADE] Button, and the picture gradually reappears on the LCD Monitor.

Fade-out

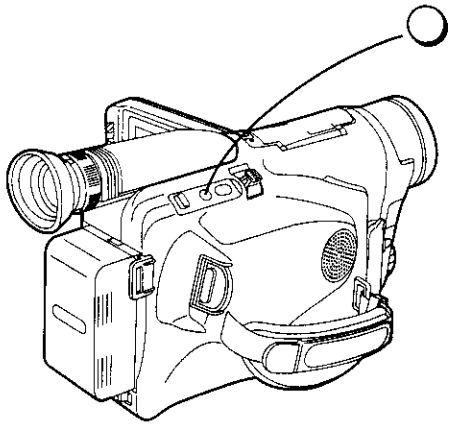
Fading out is used to create a soft ending or (together with fade-in) for a soft transition from one scene to the next.

1 **During recording, press the [FADE] Button at the point where you want to fade out, and keep it pressed.**

2 **After the picture on the LCD Monitor has completely disappeared, press the Start/Stop Button to stop recording.**

- The Movie Camera is now in the Recording Pause Mode.

3 **Release the [FADE] Button.**



(The following function is only equipped on NV-VX7A and NV-VX3A.)

How to Record a Still Picture for 5 Seconds (Snapshot)

■ Using the Snapshot Function

Recording a still picture for approx. 5 seconds can be performed by pressing a single button.

Notes:

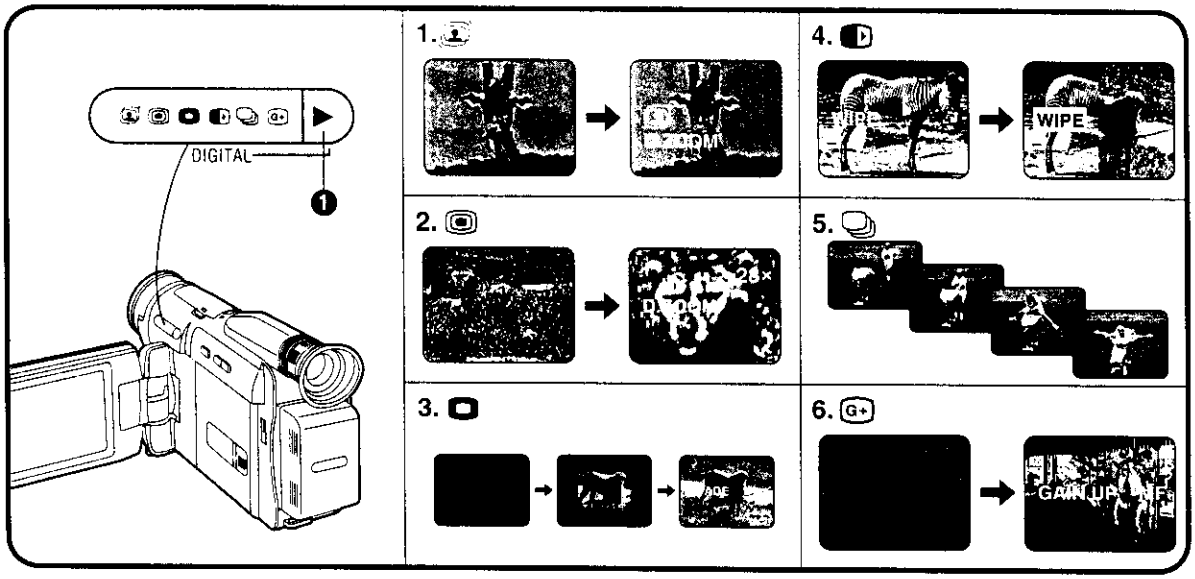
1. Since the still picture is recorded from the image memory, the picture quality may be slightly inferior to that of normally recorded pictures.
2. To prevent picture distortion, do not move or shake the Movie Camera during still picture recording.

1 Press the [SNAPSHOT REC] Button in the Recording Pause Mode.

- The image on the LCD Monitor stands still and the "SNAP" Indication appears on the LCD Monitor.
- The still picture will be recorded for approx. 5 seconds.

Notes:

1. When using this function repeatedly, wait at least 2 to 3 seconds before pressing the [SNAPSHOT REC] Button again.
2. While the Digital Wipe Function is activated, this function cannot be operated.
3. If the Viewfinder has been turned off by the Auto Power Save Function, the Snapshot Function cannot be activated.



(The following function is only equipped on NV-VX7A and NV-VX3A.)

How to Use the Digital Functions

By pressing the [DIGITAL] Button ❶, the following digital functions can be activated.

1. **Super Image Stabilizer Function** (→ 40)
2. **Digital Zoom Function**
   This function is especially practical for Recording a subject in the far distance.
3. **Digital Fade Function** (→ 41)
4. **Digital Wipe Function** (→ 42)
5. **Digital Strobe Function**
   This function continuously records 4 still images per second.
6. **Digital Gain-up Function**
   This function is useful when Recording from the outside into a house, etc.

■ To Cancel the Digital Function

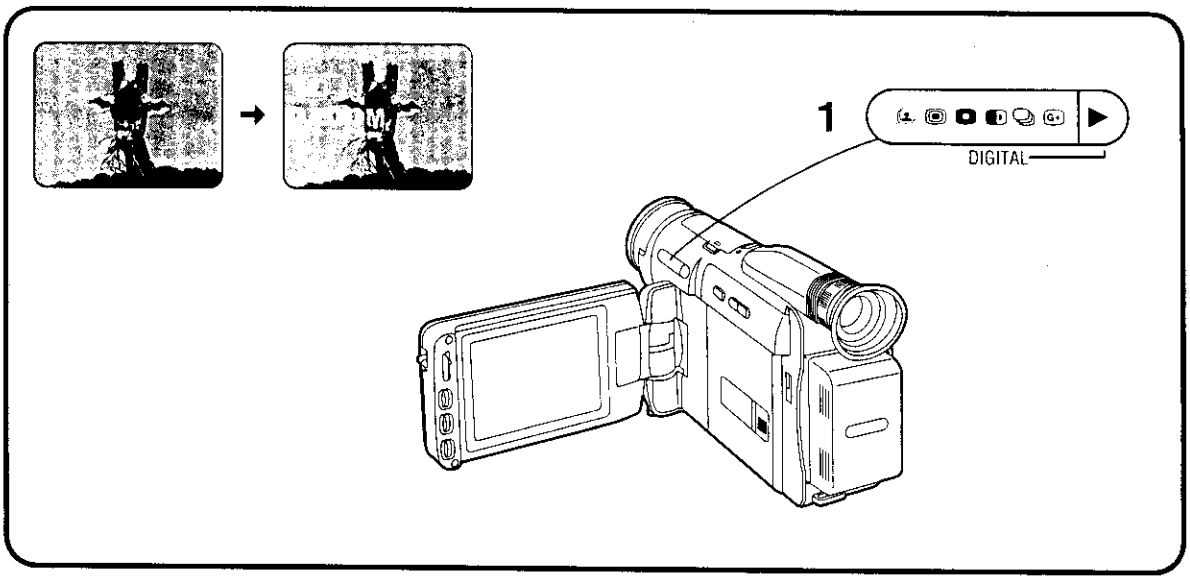
Press the [DIGITAL] Button ❶ repeatedly until none of the 6 indications is lit any more.

Notes for the Digital Zoom Function

1. When the "D.ZOOM" Indication is displayed on the LCD Monitor, the subject can be enlarged up to 140 times.
2. The zooming speed changes according to the position of the [W • T] Zoom Lever (the farther it is pushed toward either the "W" or "T" position the faster the zooming speed becomes).

Notes for the Digital Gain-up Function

1. When using this function, some after-image distortion may occur.
2. The focus must be adjusted manually since the Movie Camera is automatically put into the Manual Focus Mode.
3. The Sports Mode or the Portrait Mode will be cancelled automatically.



(The following function is only equipped on NV-VX7A and NV-VX3A.)

How to Use the Super Image Stabilizer Function

This function is especially practical for the following recording situations:

1. Zooming in on a distant subject.
2. Recording while walking.
3. Recording from inside a moving car.

1 Press the [DIGITAL] Button repeatedly until the " " Indication is lit.

- The Super Image Stabilizer Indication " " and the "D.ZOOM" Indication appear on the LCD Monitor.

In the Following Recording Conditions, the Picture Stabilizing Effect May Not Be Sufficient:

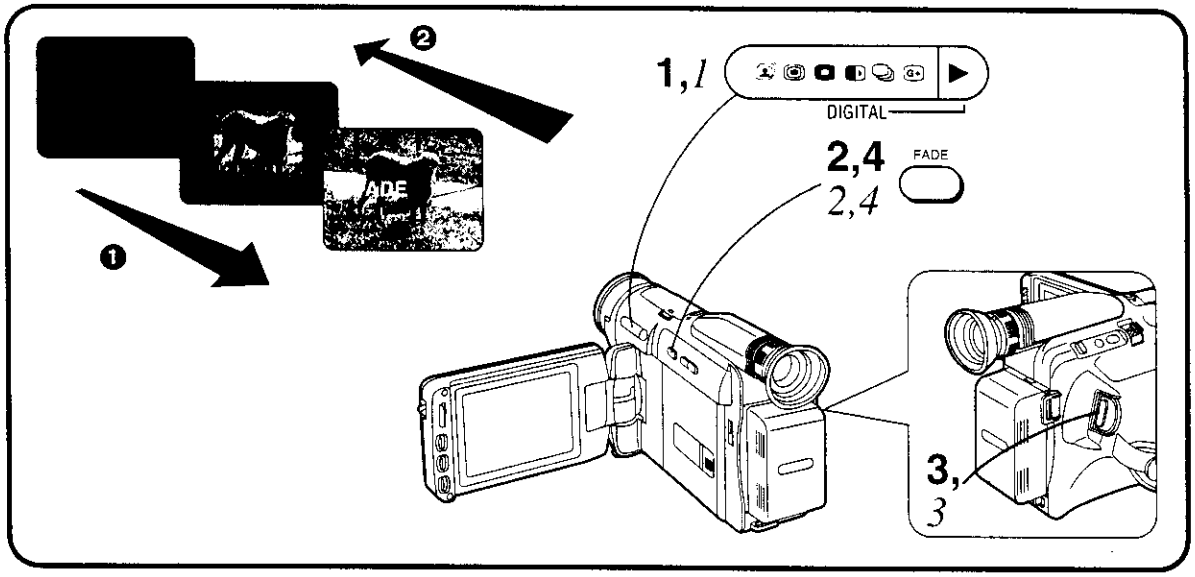
- A subject with horizontal or vertical stripes
- A flat subject
- A dark subject
  (In this case, the Super Image Stabilizer Indication " " flashes on the LCD Monitor. Increase the amount of light.)
- A subject under many fluorescent lamps
- A fast-moving subject
- A subject with a flat background

■ To Cancel the Super Image Stabilizer Function

Press the [DIGITAL] Button repeatedly until none of the 6 indications is lit any more.

Notes:

1. When you use the Super Image Stabilizer Function, the shutter speed is automatically adjusted to 1/125 s.
2. Cancelling the Super Image Stabilizer Function also resets the shutter speed to 1/50 s. However, after selecting the Sports Mode or the Portrait Mode, cancelling the Super Image Stabilizer Function does not reset the shutter speed to 1/50 s.



(The following function is only equipped on NV-VX7A and NV-VX3A.)

How to Use the Digital Fade Function

Fading in from black with the Digital Fade Function is a very interesting way to give groups of scenes a uniform beginning, for example by using it to start each day's action or to insert scenes that do not fit into the film's natural time sequence.
The sound is also gradually faded in and faded out together with the picture.

■ How to Fade in ❶

1 **Press the [DIGITAL] Button repeatedly until the " ▣ " Indication is lit.**
- The "D.FADE" Indication appears on the LCD Monitor.

2 **While in the Recording Pause Mode, keep pressing the [FADE] Button.**

3 **While keeping the [FADE] Button pressed, press the Start/Stop Button to start recording.**

4 **After approx. 3 seconds, release the [FADE] Button, and the picture gradually reappears on the LCD Monitor.**

■ How to Fade out ❷

1 **Press the [DIGITAL] Button repeatedly until the " ▣ " Indication is lit.**

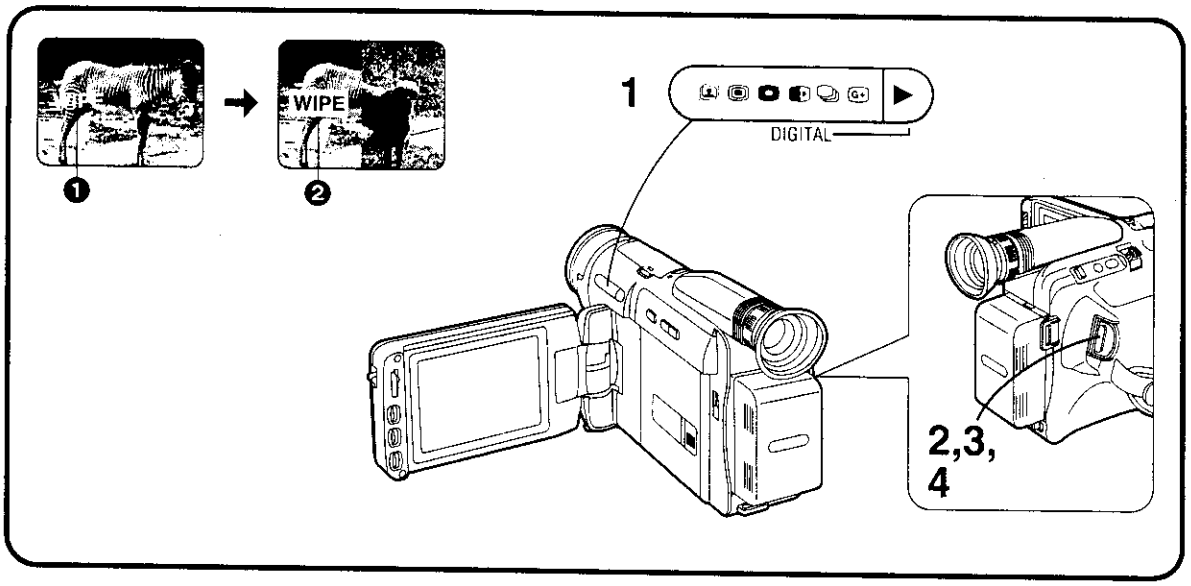
2 **During recording, press the [FADE] Button at the point where you want to fade out, and keep it pressed.**

3 **After the picture on the LCD Monitor has completely disappeared, press the Start/ Stop Button to stop recording.**

4 **Release the [FADE] Button.**

■ To Cancel the Digital Fade Function

Press the [DIGITAL] Button repeatedly until none of the 6 indications is lit any more.



(The following function is only equipped on NV-VX7A and NV-VX3A.)

How to Fade Over from the Last Recorded Scene to the Next (Digital Wipe)

This function makes it possible to achieve a smooth transition from the last recorded scene to the next scene. When starting to record the new scene, a still picture of the last scene appears, and it then changes over to the moving picture of the new scene with Digital Wipe.

Notes:

1. Since the still picture is recorded from the digital image memory, the picture quality becomes slightly inferior to that of normally recorded pictures.
2. Performing Recording Review or pressing the [VCR/CAMERA] Button does not erase the picture in the digital image memory.

1 Press the [DIGITAL] Button repeatedly until the " " Indication is lit.

- The "WIPE" Indication ❶ appears on the LCD Monitor.

2 Press the Start/Stop Button.

- The recording starts.

3 Press the Start/Stop Button.

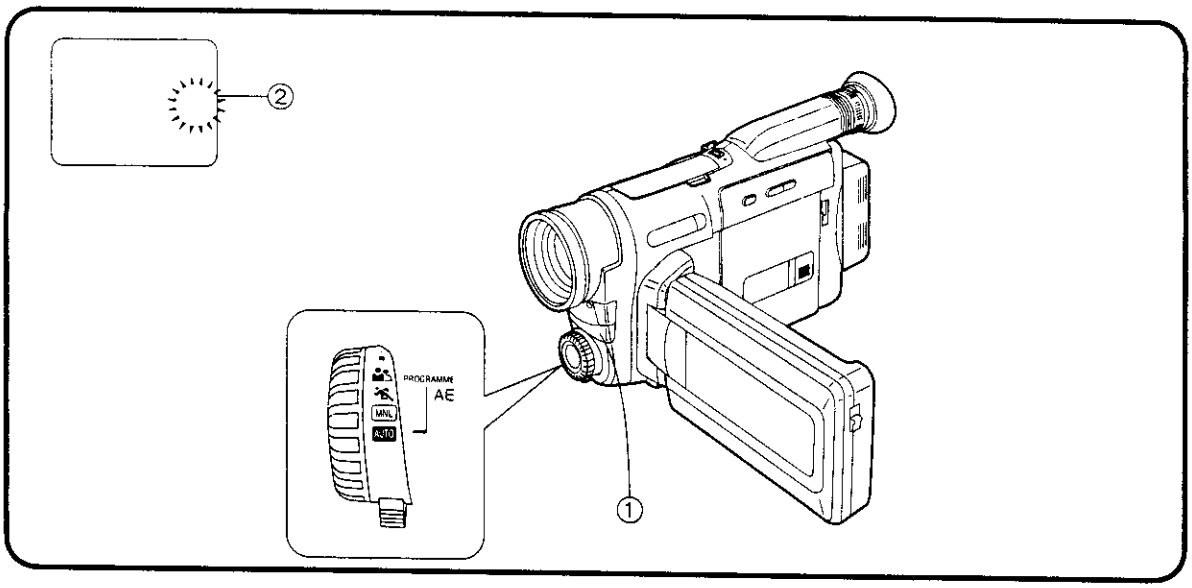
- The recording stops (Recording Pause Mode).
- The Indication ❶ changes to ❷.
- The last picture of the just recorded scene is kept in the digital image memory.

4 Press the Start/Stop Button.

- The picture (from the memory) appears as still picture. It is then gradually replaced from right to left by the moving picture of the new scene.

■ To Cancel the Digital Wipe Function

Press the [DIGITAL] Button repeatedly until none of the 6 indications is lit any more.



How to Record with Natural Colours

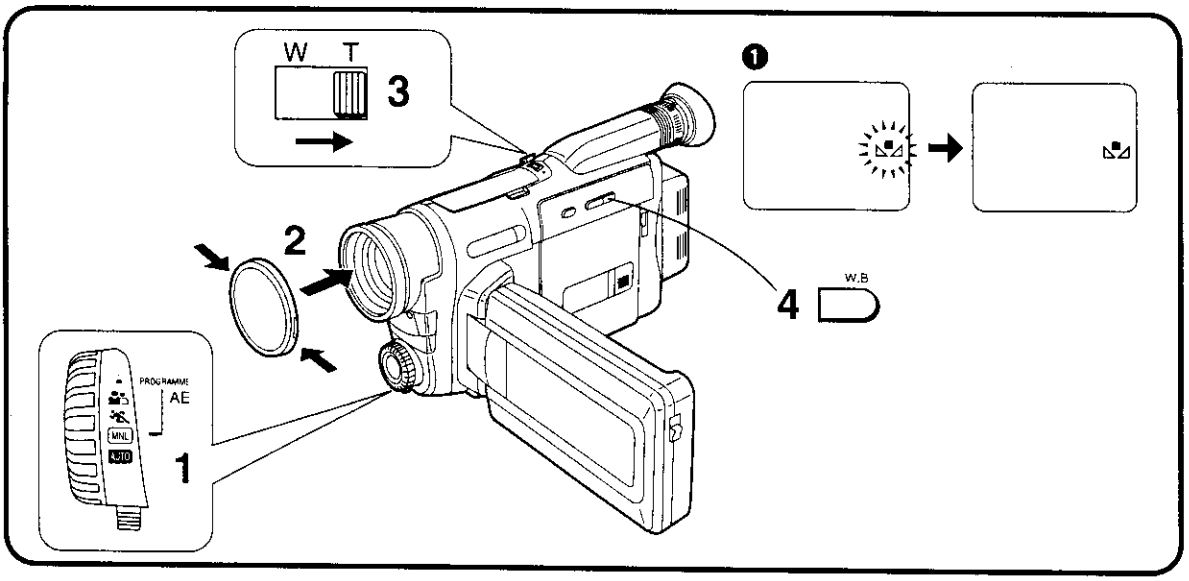
1 How to Record with Automatic White Balance Adjustment

After setting the [AE] Dial to "AUTO", you can record scenes with natural colours under almost any lighting condition.

Notes:

1. If you take the Movie Camera from outdoors to indoors while recording with Automatic White Balance Adjustment, the picture will initially take on a slightly reddish cast but it will gradually regain its natural colours.
2. Be careful not to cover the White Balance Sensor ① with your hand, etc. during recording.
3. When turning on the Movie Camera, point it at the subject that you want to record. The white balance adjustment will be more precise.

- When the [AE] Dial is set to a position other than "AUTO" and the "▣" Indication is displayed on the LCD Monitor, you can select the Automatic White Balance Adjustment Mode by pressing the [W.B] Button so that this indication disappears.
- When the "▣" Indication is not displayed on the LCD Monitor ②, the Movie Camera is in the Automatic White Balance Adjustment Mode.



2 How to Record with Manual White Balance Adjustment

Notes:

1. Under weak illumination, precise Manual White Balance Adjustment may not be possible. In this case, record in the "AUTO" Mode.
2. If an additional light source with low colour temperature (e.g. halogen lamp) is used momentarily while recording a subject with high colour temperature (e.g. blue sky or TV screen), unnatural colours will result.
3. Once it is set, the manually adjusted white balance setting is maintained until the Manual White Balance Adjustment Mode is cancelled. However, to ensure optimum colour reproduction, it is recommended that you adjust the white balance for each new scene by performing the following steps.

1 Set the [AE] Dial to "MNL".

- The "MNL" Indication appears on the LCD Monitor.
- It is also possible to set the [AE] Dial to one of the other positions, except "AUTO".

2 Attach the Lens Cap.

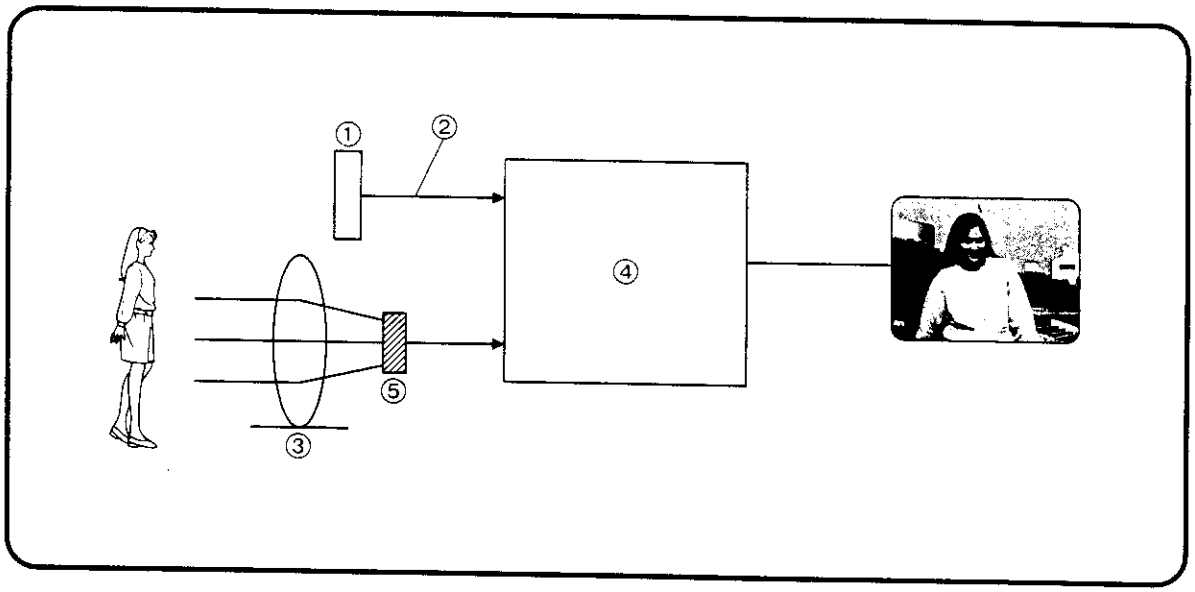
- If there are several light sources or if the illumination is weak:
  Remove the Lens Cap and point the Movie Camera at a pure white subject.

3 Keep pushing the [W • T] Zoom Lever toward "T" until the LCD Monitor becomes completely white.

4 Keep pressing the [W.B] Button for more than 1 second until the "▫" Indication ❶ stops flashing.

■ **To Return to Automatic White Balance Adjustment**

Press the [W.B] Button to make the "▫" Indication disappear. Or reset the [AE] Dial to "AUTO".



Function Principle of the White Balance Adjustment

In addition to sunlight, there are various kinds of electric lights in use today, such as incandescent lamps, fluorescent lamps, etc. The colour of the subject differs depending on the light that falls on it.

Human Eyes can easily adjust to different kinds of lighting and recognize an object as having the same colour, even under different light.

Movie Cameras do not have such an adaptability. Therefore, if the subject were recorded without any colour adjustment, the lighting would influence the colouring of the reproduced picture, giving it a bluish or reddish tint. To prevent this, an adjustment called "White Balance Adjustment" needs to be performed on the Movie Camera, either automatically or manually.

① White Balance Sensor

② Lighting Condition

③ Lens

④ Microcomputer

⑤ CCD

- Please note that the Movie Camera should already be aimed at the subject when turning it on. In this way optimum white balance adjustment can be obtained immediately from recording start.

■ White Balance Adjustment

This adjusts the camera to pure white under different lighting conditions. After white is set, the Movie Camera can compensate for the colour in the lighting and adjust the other colours accordingly. As white is the base of all colours (light), if the white colour is correctly adjusted, recording scenes with natural colours is possible under almost any lighting condition.

■ Automatic White Balance Adjustment

To provide natural colours in the most common lighting situations, this Movie Camera has optimum settings for these conditions stored in memory. It determines the colour of the light entering through the lens as well as through the White Balance Sensor window and selects the matching colour setting from among the stored settings. This function is called "Automatic White Balance Adjustment".

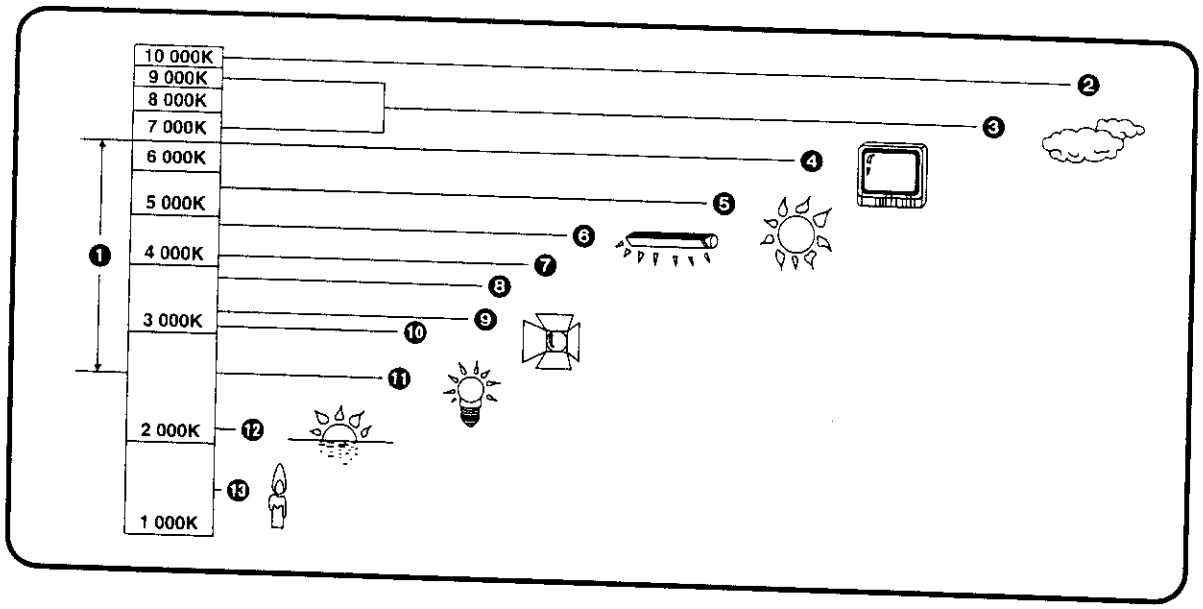
However, as the optimum settings of only several types of light sources are stored in memory, the Automatic White Balance Function does not work with sufficient precision in other conditions.

In such cases, the Manual White Balance Adjustment Mode should be used.

■ Manual White Balance Adjustment

With the Manual White Balance Adjustment, the user can adjust the colour compensation for the light source used for a particular scene. For this adjustment, the White Lens Cap is put on the Lens and the [W.B] Button pressed, so the Movie Camera can determine how much the white of the Lens Cap under the present lighting deviates from the value for pure white stored in memory. Alternatively, the user can aim the camera at a pure white object (e.g. a sheet of pure white paper) instead of using the White Lens Cap.

In the illustration (→ 47), ❶ indicates the range of lighting sources within which the Automatic White Balance Adjustment Function can provide accurate compensation. For recording under lighting conditions outside this range, use the Manual White Balance Adjustment Mode because the Automatic White Balance Adjustment cannot provide satisfactory results.



Colour Temperature and White Balance

The colour temperature of the light source is measured in Kelvin (K). The higher the Kelvin value is, the more bluish is the light; the lower the value, the more reddish is the light. This is not directly related to the brightness. The illustration shows the relationship between natural light, artificial light and colour temperature.

❶ Control range of the Auto White Balance Function

❷ Blue sky

❸ Cloudy sky (rain)

❹ TV screen

❺ Sunlight

❻ White fluorescent lamp

❼ 2 hours after sunrise or before sunset

❽ 1 hour after sunrise or before sunset

❾ Halogen light bulb

❿ 30 minutes after sunrise or before sunset

⓫ Incandescent light bulb

⓬ Sunrise or sunset

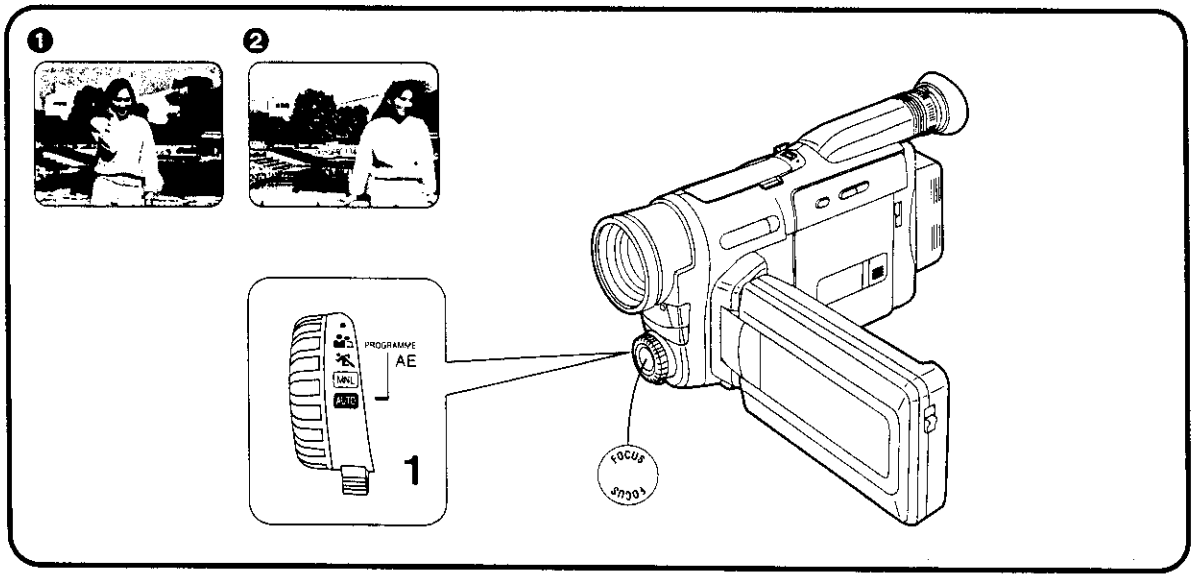
⓭ Candlelight

For the following types of scenes, the Automatic White Balance Adjustment Mode cannot provide satisfactory results, even if the light source is within the range ❶ (→ 47). Use the Manual White Balance Adjustment Mode instead.

- **When a Scene Is Lit by Several Light Sources**
  If there is more than one light source for a scene, the Movie Camera cannot decide which of the stored White Balance Adjustment settings to use. Therefore, precise Automatic White Balance Adjustment is not possible in such cases.

- **When Recording an Outdoor Scene from Inside a Building**
  As the colour of the light entering through the lens differs greatly from that received by the White Balance Sensor, the Automatic White Balance Adjustment Function compensates for indoor lighting and this results in unnatural colours.

- **When Recording in a Very Dark Place**
  As the colour information entering through the lens is greatly reduced, the Automatic White Balance Adjustment Function cannot correctly compensate for the colour of the lighting and this results in unnatural colours.



How to Adjust the Focus

This Movie Camera gives you the choice between automatic and manual focusing. The Auto Focus Mode explained below will provide precise automatic focusing for most common subjects and recording situations for maximum recording ease.

1 How to Record in the Auto Focus Mode

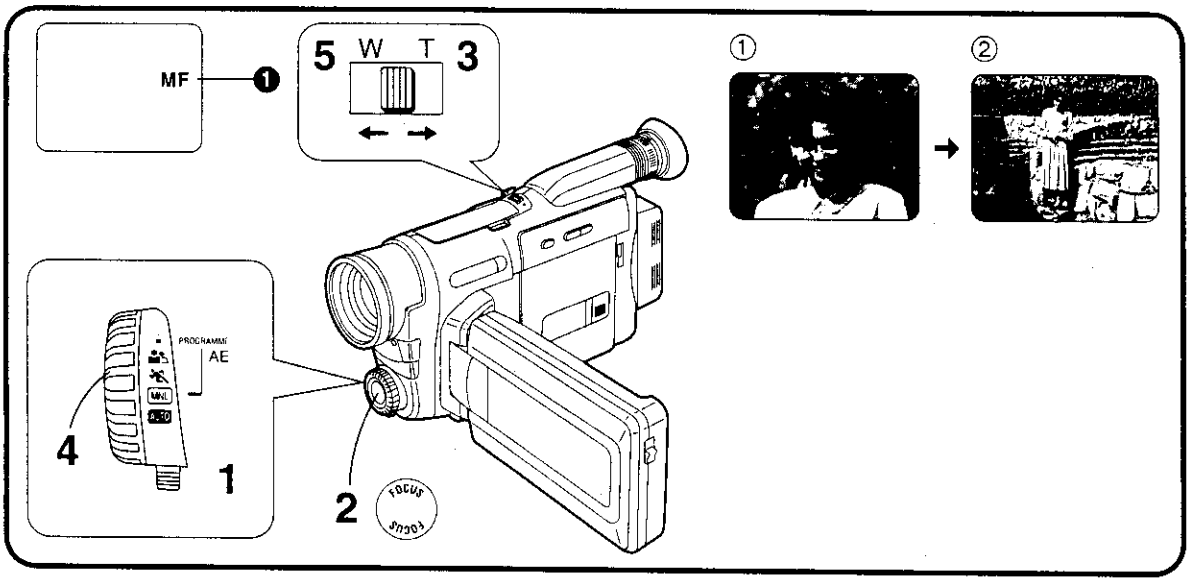
1 Set the [AE] Dial to "AUTO".

- However, if you want to record with the [AE] Dial set to a position other than "AUTO", press the [FOCUS] Button so that the "MF" Indication (Manual Focus) on the LCD Monitor disappears.

Note:

The focus is automatically adjusted to the subject in the centre of the LCD Monitor.
Aim the Movie Camera so that the subject is in the centre of the LCD Monitor as shown in illustration ❶.

❶ Correct ❷ Wrong



2 How to Record in the Manual Focus Mode

1 Set the [AE] Dial to "MNL".

- The "MNL" Indication appears on the LCD Monitor.
- It is also possible to set the [AE] Dial to one of the other positions, except "AUTO".

2 Press the [FOCUS] Button.

- The "MF" Indication ❶ appears on the LCD Monitor.
  "MF" means Manual Focus.

3 Keep pushing the [W • T] Zoom Lever toward "T" to zoom in on the subject ①.

4 Turn the Focus Ring to adjust the focus.

5 Push the [W • T] Zoom Lever toward "W" to zoom out as desired ②.

Note:

For precise manual focus adjustment, always fully zoom in on the subject, so that the subject appears as large as possible on the LCD Monitor. In this condition, it is easier to judge by the picture on the LCD Monitor at what position of the Focus Ring the subject is precisely focused.

If you performed the manual focus adjustment in the wide-angle setting and you subsequently zoomed in on the subject, it might then become apparent that it is not precisely focused.

■ To Cancel the Manual Focus Mode

Press the [FOCUS] Button to make the "MF" Indication disappear.

Or reset the [AE] Dial to "AUTO".

Function Principle of the Focus Adjustment

If you look at an object through a magnifying glass and move it closer or further away from your eye, you will reach a point where the object becomes clearly visible. Being focused or in focus means that the subject can be seen with optimum clarity and sharpness. The distance between the lens and the point where the rays of light come together is called "focal distance" or "focal length" and it depends on the size and shape of the lens.

■ FOCUS Adjustment in Human Eyes

Human eyes have lenses as well, and when we look at objects at different distances, the shape of these lenses changes automatically so that we can always see these objects clearly.

■ FOCUS Adjustment in the Movie Camera

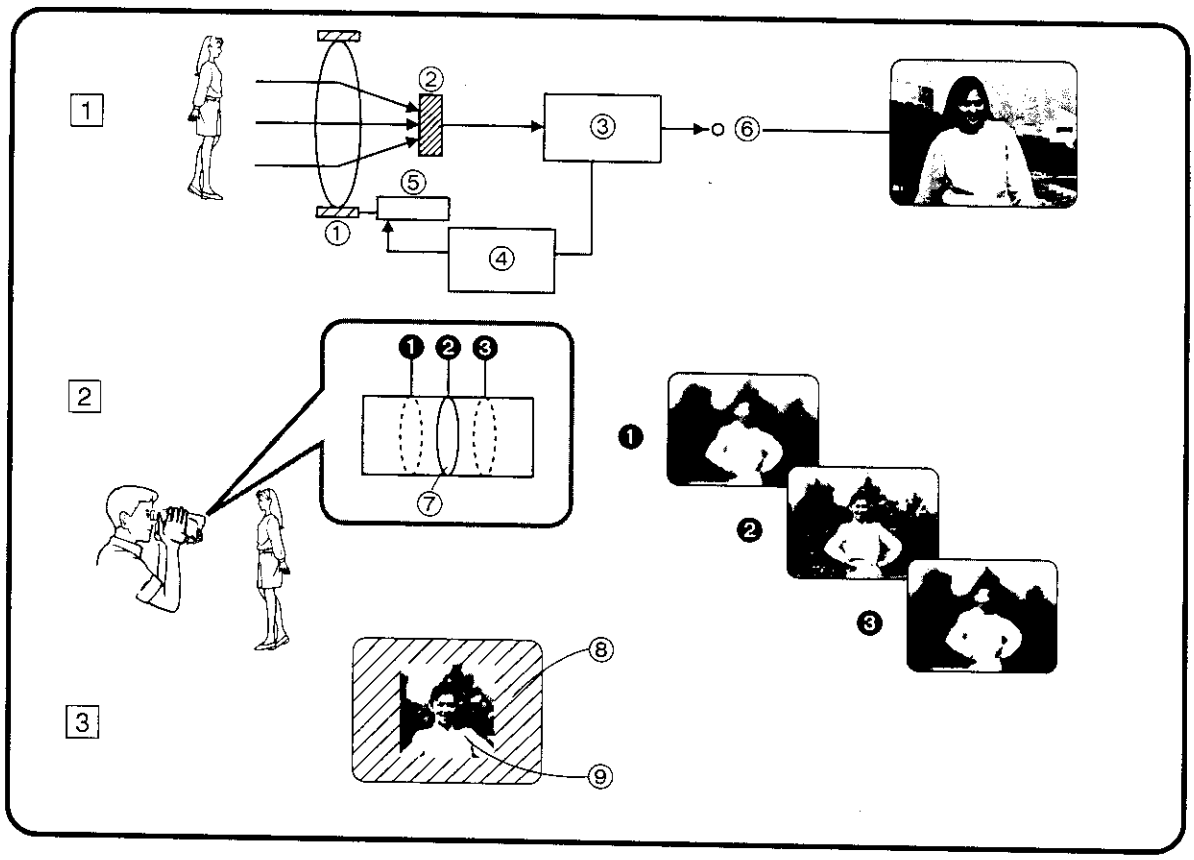
The image of the subject enters the Movie Camera through the lens and is converted into an electrical signal (video signal) for recording onto magnetic tape. In the Movie Camera, the "Auto Focus" system automatically adjusts the focal distance by moving the focusing lens forward or backward.

■ The Auto Focus Mechanism of this Movie Camera

In video cameras, one of the following two methods is generally used:

1) Infrared Focusing: The recording distance is calculated and adjusted based on the time it takes for an infrared signal emitted from the front of the camera to be bounced off the subject and received back by a sensor on the camera.
2) Camera-Internal Electronic Focusing: The focus is adjusted based exclusively on the image received by the camera and the resulting picture signal.

This Movie Camera employs the Internal Electronic Focusing Method.



Operation Principle of the Auto Focus Function (Automatic Focusing)

- As shown in Fig. 1 above, when you aim the Movie Camera at the subject you want to record, the microprocessor moves the lens little by little based on the information about vertical contours of the subject in the picture signal. At the point where the vertical contours of the subject become sharpest, it judges that the subject is in focus and stops the lens. (See Fig. 2.)
- Special Characteristics of the Movie Camera's Automatic Focus Adjustment Function
  - (A) It adjusts the focus for sharpest vertical lines.
  - (B) It adjusts the focus on parts of the subject with strong contrast.
  - (C) It adjusts the focus only on the centre part of the picture on the Viewfinder Screen. (The area where the subject is in focus is much smaller than the TV screen, as shown in the Fig. 3.)

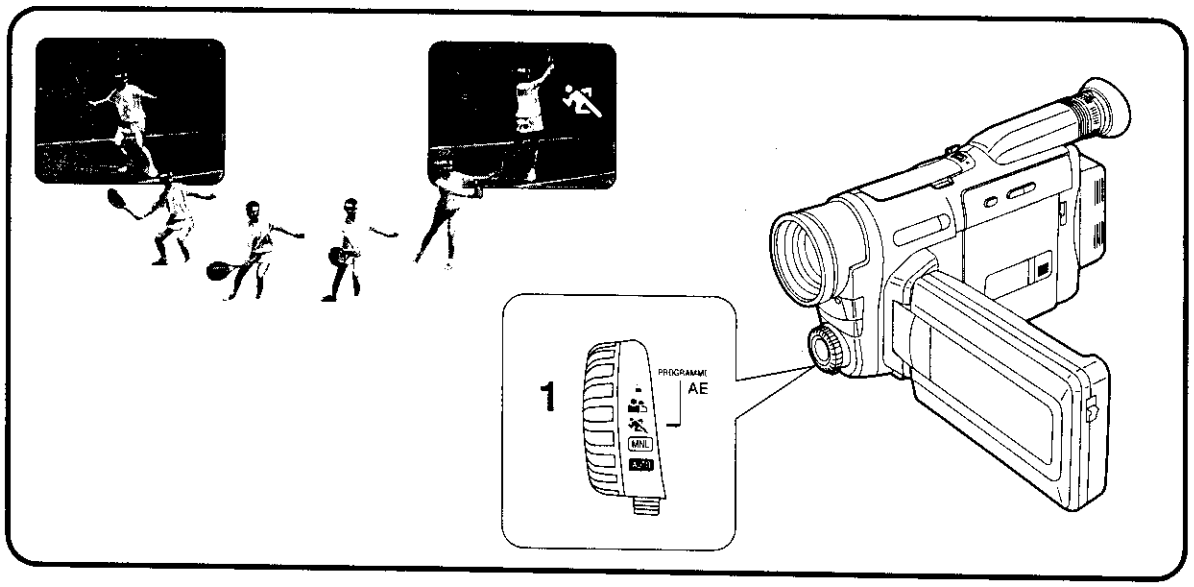
① Focusing Lens
② CCD Image Sensor
③ Signal Processing
④ Microprocessor
⑤ Motor
⑥ Video Signal
⑦ Focusing Lens
⑧ TV Screen
⑨ Image area on which the Auto Focus Function adjusts the focus.

Unlike the human eye, however, the Movie Camera's Auto Focus System cannot change the focus from a distant to a close subject without any delay.

For the following subjects and recording situations, the Manual Focus Mode should be used:

- **Subjects with Shiny Surfaces or Much Light Reflection**
  As the Movie Camera adjusts the focus on the objects with shiny surfaces or much light reflection, the subject may go out of focus.
  - The subject may be out of focus when it is recorded at the seaside in the evening, under firework illumination or when special kinds of lights are used.
- **Fast-moving Subjects**
  As the lens is moved mechanically, it cannot follow fast-moving subjects without delay.
  - Subjects like quickly and abruptly moving children may temporarily go out of focus.
- **Subjects with Weak Contrast**
  As the Movie Camera adjusts the focus based on vertical contours in the picture, subjects with little contrast may be out of focus.
  - When recording a flat white wall, for example, the Movie Camera has no information by which it can adjust the focus correctly.
- **Subjects with a Part of It Near the Movie Camera and Another Part Far Away from It**
  As the focus is adjusted on the centre part of the image, it is difficult to bring the distant part of the subject in focus.
  - When you want to record a person with a distant mountain behind, it is not possible to focus on both.
- **Subjects Behind Moving Objects**
  As the focus is adjusted on the person or object that passes between the Movie Camera and the subject, the subject may temporarily go out of focus.
  - When recording a subject across a street on which cars are running, the subject may go in and out of focus.
- **Subjects with Dark Surfaces**
  If the amount of light entering through the lens is greatly reduced, the Movie Camera has very little information by which to adjust the focus.
  - When recording persons in dark surroundings, precise focusing may not be possible.

- Precise focusing may also not be possible for subjects that have no vertical contours or are behind glass covered with dirt, dust or water drops.



How to Record Fast-moving Subjects

This function lets you record fast-action scenes, such as tennis or other sports, with minimal blur.

■ Using the Sports Mode

In the Sports Mode, the shutter speed is automatically adjusted (between 1/50 s and 1/500 s) according to the brightness of the subject, so images are sharp and stable even when recording subjects with fast movements.
When you play back scenes recorded in the Sports Mode on a VCR, you can enjoy still and slow motion playback of very sharp images with fine details.

Notes:

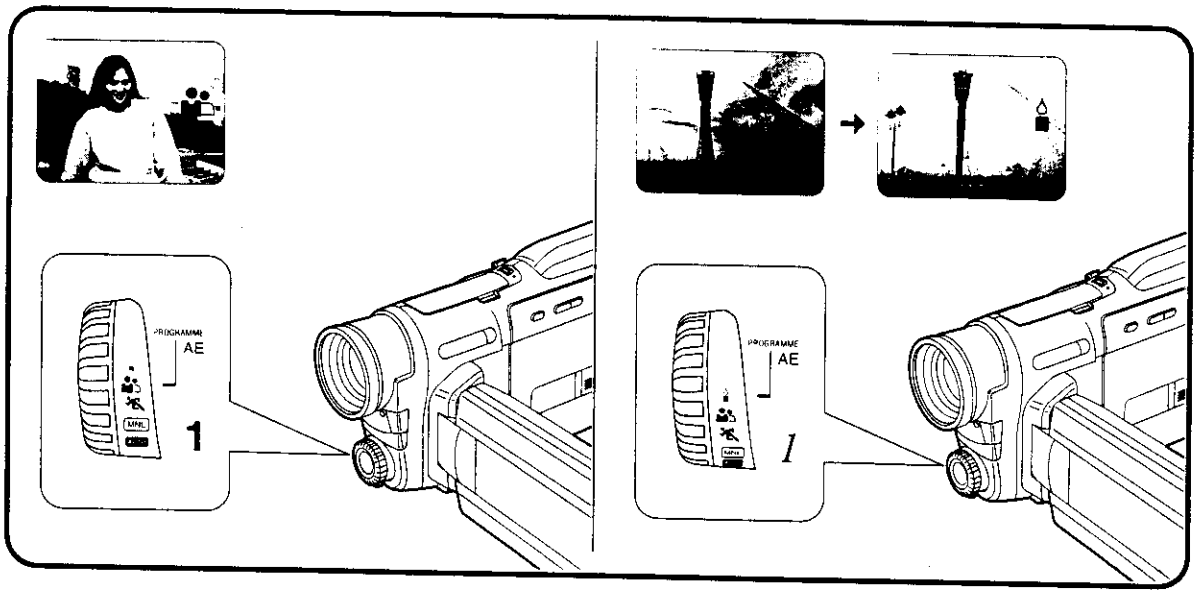
1. The subject must be brightly lit by sunlight or other strong light, with little shade.
2. When recording under fluorescent, mercury-vapour or natrium lamps, the picture will be adversely influenced by flickering.
3. When a scene recorded in the Sports Mode is played back in the normal playback mode, the picture movement may not be as smooth as it usually is.
4. If you record under weak lighting, the " " Indication flashes to warn you that the Sports Mode may not be effective.

1 Set the [AE] Dial to " " (Sports Mode).

- The " " Indication appears on the LCD Monitor.

■ To Return to the Normal Recording Mode

Reset the [AE] Dial to "AUTO".



How to Make Your Subject Stand out Sharply from the Background

■ Using the Portrait Mode

In the Portrait Mode, the iris is automatically set to the maximum aperture for a very small depth-of-field. This gives you a sharply focused subject in the centre of the picture with a blurred background and foreground.

1 Set the [AE] Dial to "" (Portrait Mode).

- The "" Indication appears on the LCD Monitor.
- Zooming in on the subject by pushing the [W • T] Zoom Lever toward "T" increases the blurring of the background.

■ To Return to the Normal Recording Mode

Reset the [AE] Dial to "AUTO".

How to Record Dark Scenes More Brightly

■ Using the Low Light Mode

Note:

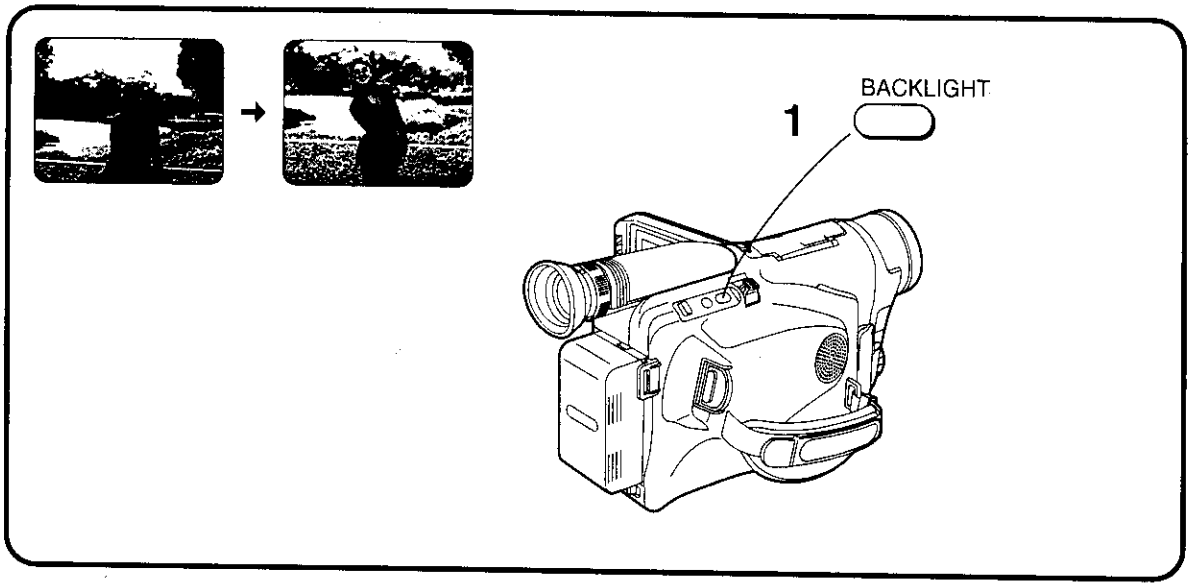
Even if you use this mode for outdoor recording in the daytime, the result will be almost the same as when recording in the normal mode.

***1* Set the [AE] Dial to "" (Low Light Mode).**

- The "" Indication appears on the LCD Monitor.
- This increases the sensitivity and brightens up the picture.

■ To Return to the Normal Recording Mode

Reset the [AE] Dial to "AUTO".



How to Record Backlit Scenes

■ Using the Backlight Recording Function

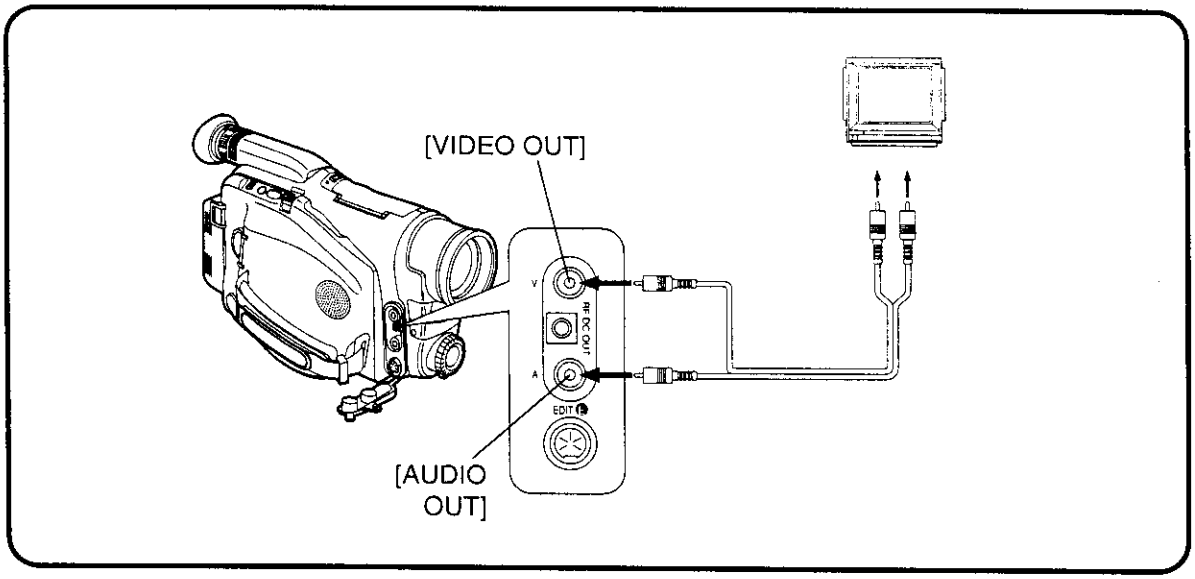
Notes:

1. The sky may appear whitish.
2. When recording with the sun striking the subject at an angle, star-shaped light reflexes may be recorded in the picture.
3. When recording a subject in front of a very bright background, the subject may still appear dark in the picture.

1 Keep pressing the [BACKLIGHT] Button.

■ To Cancel this Function

Release the [BACKLIGHT] Button.



How to View Playback on Your TV Set

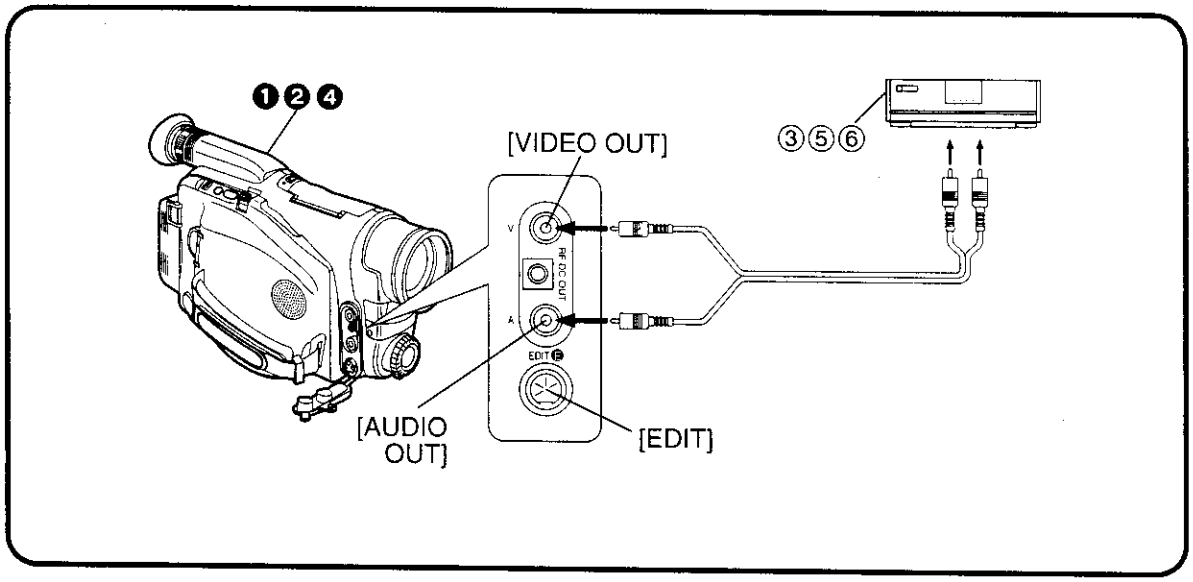
Note:
If your TV set is not equipped with an AV Input Socket, the RF Adaptor (VW-RF7E; optional) is necessary. To connect, read the RF Adaptor's operating instructions. The [RF DC OUT] Socket supplies the RF-Adaptor with power.

- Be sure to turn the Movie Camera off before connecting the RF Adaptor.

■ Playback on a TV Set Featuring an AV Input Socket

Note:
Before connecting, turn off both the Movie Camera and the TV set.

Connect with the supplied Audio/Video Cable, as shown above.



How to Copy from the Movie Camera onto a VCR (Dubbing)

Connect with the Audio/Video cable, as shown above.

■ Operations

Playback Unit (Movie Camera): ❶, ❷, ❹

Recording Unit (VCR): ③, ⑤, ⑥

❶ Insert the recorded video cassette for playback into the Movie Camera.

❷ Play back the tape and stop playback at the point where you want the dubbing to start.

③ Insert the video cassette for recording into the VCR and put it in the Recording Pause Mode. Also read the operating instructions of the VCR.
The picture quality deteriorates slightly in the dubbing process, however, this can be minimized by selecting the standard recording speed (SP Mode) on the VCR and by setting the Edit Switch (if equipped) to "ON".

❹ Start playback.

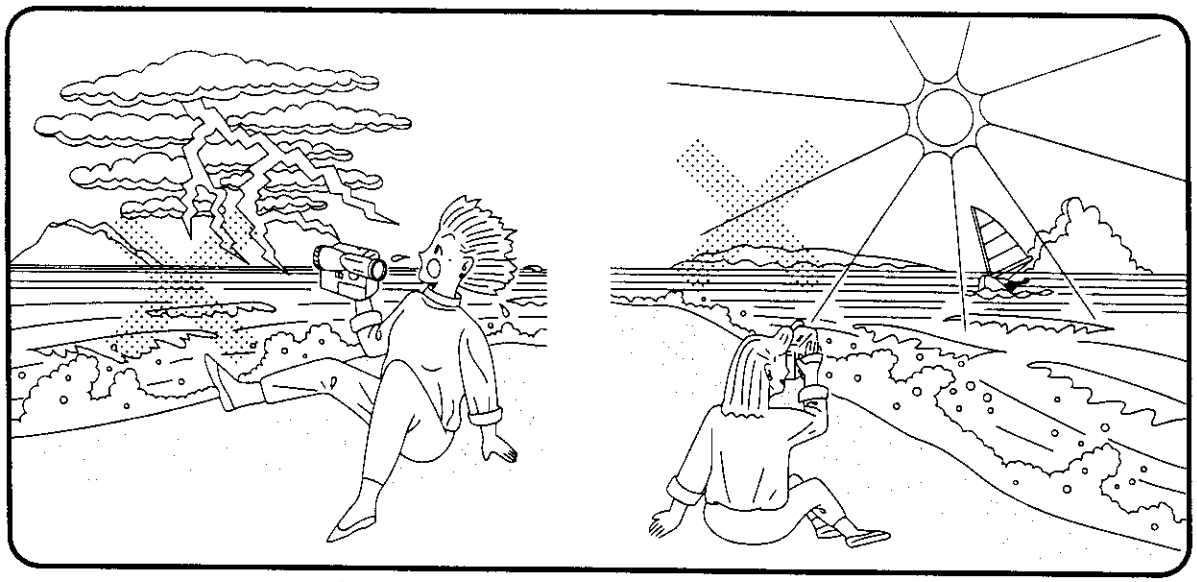
⑤ Press the Pause/Still Button to start recording.

⑥ Press the Pause/Still Button at the point where you want the dubbing to end.
The VCR is now in the recording pause mode.

⑦ For each further scene that you want to dub, perform steps ❷, ❹, ⑤ and ⑥ above.

■ Edit Socket [EDIT]

By connecting an Editing Controller (optional) to this socket as well as to a VCR equipped with an Edit Socket, you can edit quickly and precisely.

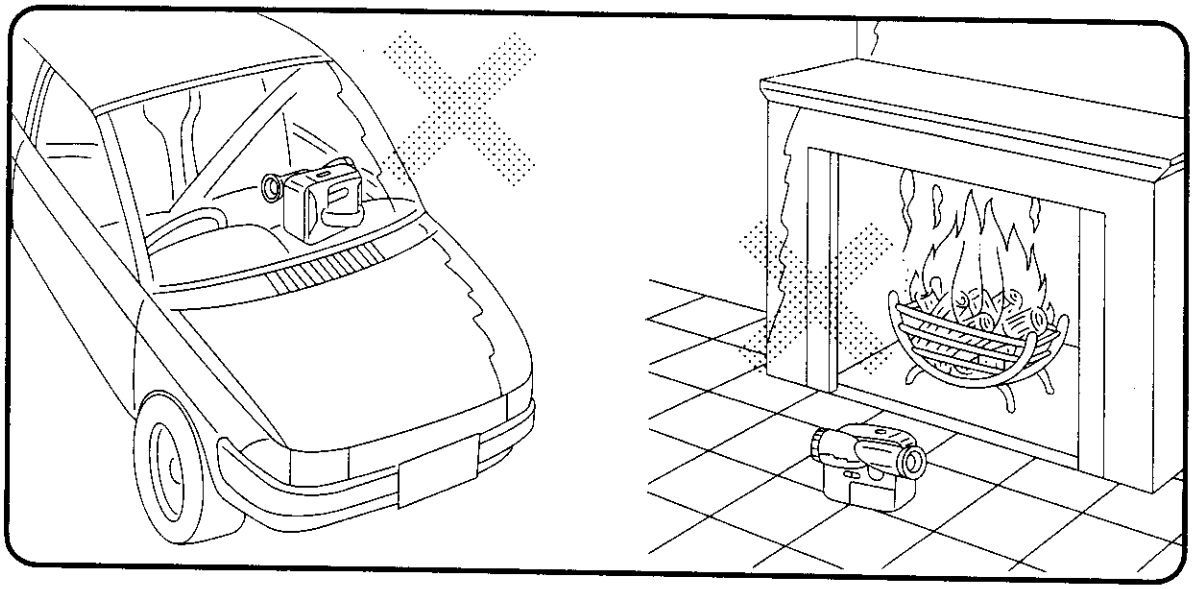


Precautions for the Movie Camera

In the event of abnormal operation (e.g. if the unit emits smoke or an unusual smell), immediately stop operating the unit and consult qualified service personnel.

■ Precautions When Using the Movie Camera

- Do not disassemble or reconstruct it.
- Do not subject it to strong vibrations or shocks.
  (Handle it with care to prevent accidentally dropping it.)
- When a thunderstorm approaches, stop using it.
  (If the AC Adaptor is being used, disconnect it from the AC mains socket.)
- Do not aim the Lens at the sun.
  (This could damage internal parts of the Movie Camera.)
- Do not use it in places with high temperature and high humidity.
- Do not use it in the water or in places where water or other liquids could splash on it.
  (If it is accidentally dropped into water while the AC Adaptor is being used, disconnect it from the mains.)
- Do not use it with the cassette compartment facing down.
  (This could cause uneven winding of the tape.)
- Do not insert or remove the video cassette in dusty places.
- Do not use the Viewfinder as a carrying handle when transporting the Movie Camera.
- Do not insert any foreign objects into the Movie Camera nor spill water into it.
- Do not use it near magnets or magnetized objects.
- Do not use it in areas with strong electric fields.
  (This could negatively influence the picture quality.)
- Do not operate it near a TV set or a radio.
  (This could distort the picture and sound reception.)
- Do not use it in places with steam or oily smoke.



■ Precautions When Storing the Movie Camera

- Do not store this Movie Camera in the following places:
  - —Places exposed to direct sunlight.
  - —Places with high temperature and high humidity (e.g. in a closed car or in a bathroom).
  - —Near heaters.
- Do not leave it in direct contact with rubber or plastic products for a long time.
- Keep it out of reach of children.

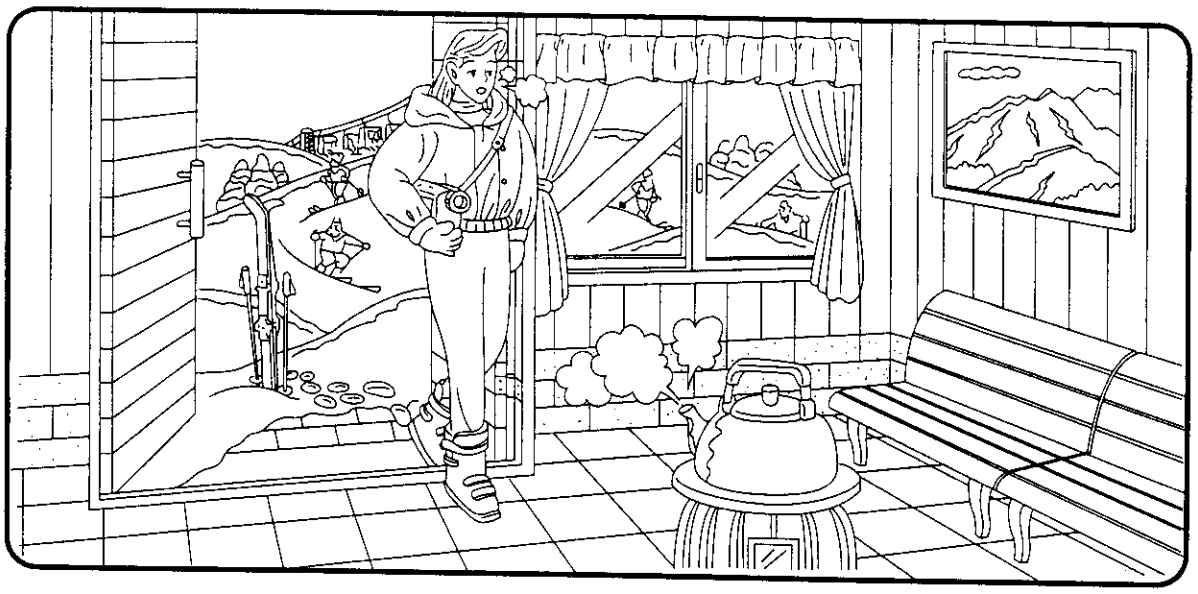
■ Precautions When Transporting the Movie Camera

- When not actually recording, carry it in a camera bag or camera case for maximum protection.
- Keep the packing materials. When transporting it in the future, pack it in the same way as you purchased it.

If the Video Heads Become Clogged with Dirt, Recording Clean Pictures Is No Longer Possible.

■ Symptoms of Dirty Video Heads

- When the following symptoms occur, the video heads are clogged.
  - ❶ The "U11/⊗" Indication on the LCD Monitor flashes. (When recording immediately after replacing the video cassette, this indication may disappear temporarily.)
  - ❷ The picture is distorted.
- When the above symptoms occur, consult qualified personnel.
- When the video heads are excessively clogged, the Movie Camera's recording and playback capacity is impaired.



Precautions against Condensation

■ Symptoms of Condensation

If the following symptoms occur, condensation has formed inside the Movie Camera.

❶ The Condensation Indication "U10/[▲]" on the LCD Monitor flashes.
(A few seconds later, the Movie Camera automatically turns itself off.)

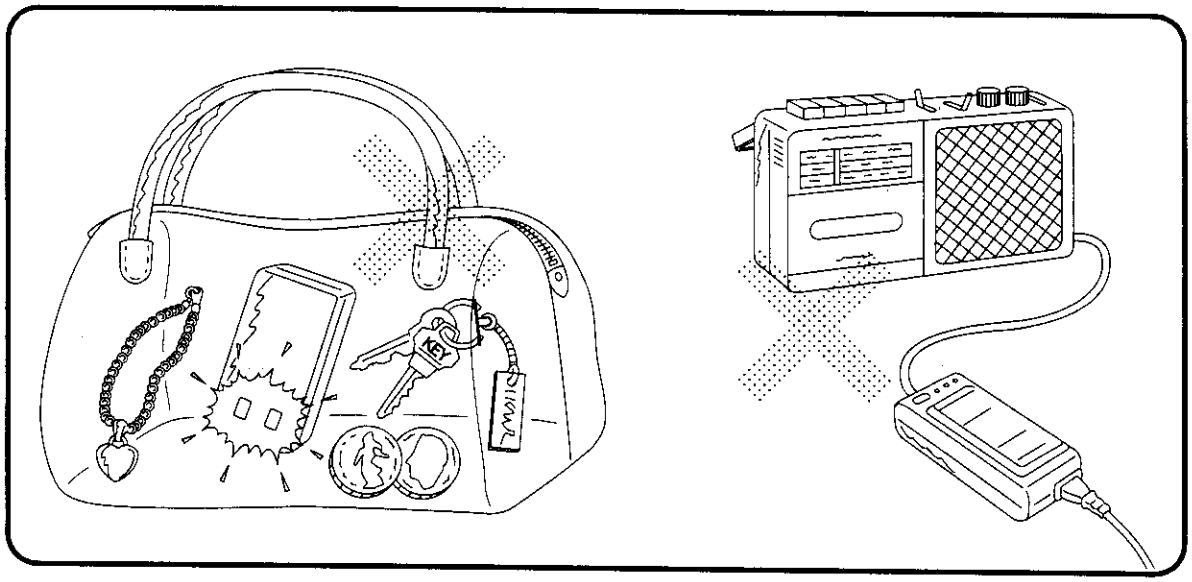
❷ When turning on the Movie Camera, it turns itself off.
(However, the Movie Camera also turns off when the Battery Pack is exhausted!)

■ Remedy

1. Wait a few hours before operating the Movie Camera again. (The actual time depends on the surrounding conditions.)
2. Turn on the Movie Camera.
3. Confirm that the Condensation Indication is not displayed any more.
4. For added safety, wait about 1 more hour.

■ Notes about Condensation

- Condensation can form when the Movie Camera is suddenly brought from cold surroundings to a place which is hot or humid. To prevent condensation from forming in such a case, keep it in a tightly closed plastic bag or something similar for 1 to 2 hours before recording or storing the Movie Camera at the new place.
- Since condensation forms gradually, there may already be some condensation inside the Movie Camera even before the Condensation Indication begins to flash.
- In an extremely cold place, condensation may freeze. As the Movie Camera cannot detect ice, the Condensation Indication does not appear before the ice melts.



Precautions for the Battery Pack

■ Cautions for Use

To prevent leakage, excessive rise in temperature and explosion, be sure to observe the following points:

1. Use only the specified AC Adaptor or the optional Car Battery Charger to charge the Battery Pack.
   When the operation time even after proper charging is too short for normal use, the service life of the Battery Pack has reached its end. (It can be charged approx. 200 times.)
2. Make sure that no metal objects touch (short-circuit) the connectors of the Battery Pack. (When carrying it in a bag or similar, take care that keys, coins, etc. do not come in contact with it.)
3. Do not heat the Battery Pack or throw it into a fire.
4. Do not apply solder to the Battery Pack and do not disassemble or reconstruct it.
5. Always make sure that the contacts are clean.
6. If the Battery Pack becomes too warm, a protection function is activated and it puts the Battery Pack temporarily out of operation.
7. If the Movie Camera has turned off automatically because the Battery Pack has become exhausted, remove the Battery Pack before connecting the DC Input Cable of the AC Adaptor to the Movie Camera to continue recording, otherwise the Movie Camera cannot be turned on.
8. When the Battery Pack is not used, store it in a cool and dry place.
9. Do not dispose of the exhausted Battery Pack with your household waste. When purchasing a new Battery Pack, return the old Battery Pack to your dealer for environmentally correct disposal.

Precautions for the AC Adaptor

■ Cautions for Use

- Before connecting the AC Adaptor to an AC mains socket, confirm that the local AC mains voltage and frequency are within the voltage and frequency range specified on the rating plate.
- Do not use it for any purpose other than supplying the Movie Camera with power and charging the Battery Pack.
- Do not operate it very close to the Movie Camera or a radio, TV etc.
- When unplugging the AC Mains Cable, pull it by the plug, not by the cable.
- Do not bend the cables excessively.
- Do not expose the cables to high temperature and chemicals.
- Do not handle the AC Adaptor with wet hands.
- Before cleaning the AC Adaptor, make sure that it is disconnected from the AC mains socket.

Before Requesting Service

Power Source

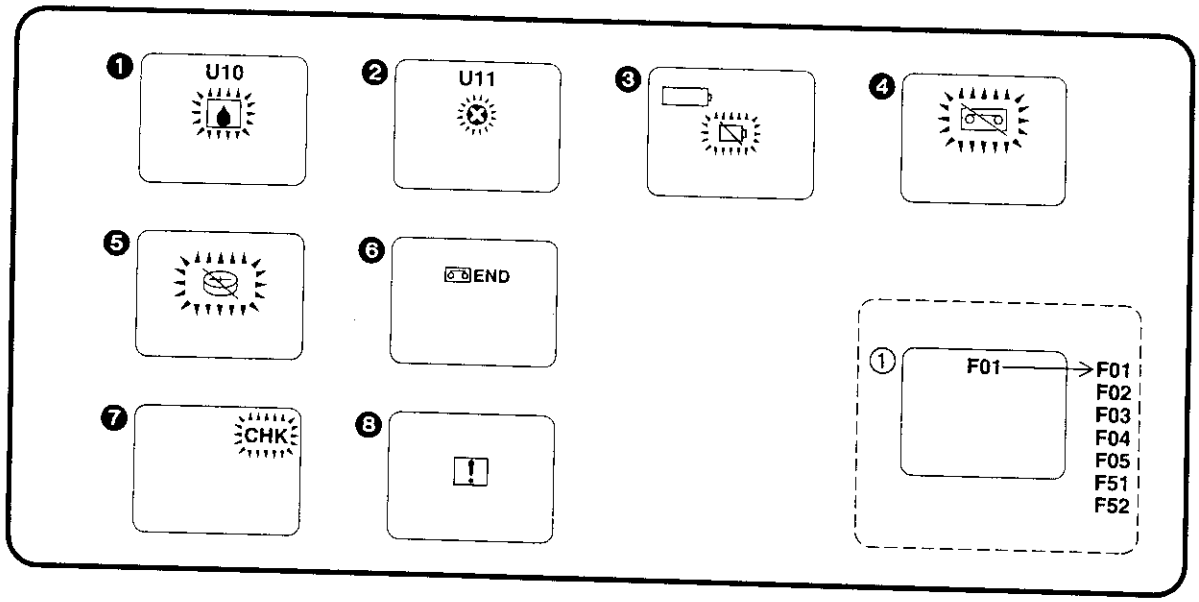
Symptom	Cause	Action	Page
•Movie Camera does not turn on.	•Battery Pack is not attached.	•Attach it correctly.	8
	•Battery Pack is not charged.	•Charge it.	6
	•AC Adaptor is not connected.	•Connect AC Adaptor correctly to Movie Camera.	30
•Movie Camera turns off soon.	•Battery Pack is exhausted.	•Use a fully charged one.	6
	•Recording was paused for more than 6 minutes.	•Turn in [POWER] Switch to turn off Movie Camera, and then turn it out again.	17
	•Condensation has formed inside.	•Wait several hours.	61

Recording

•No picture appears in the Viewfinder.	•LCD Monitor is open.	•Securely close the LCD Monitor.	11
	•[POWER] Switch is turned in.	•Turn it out.	17
	•Lens Cap is on the Lens.	•Remove it.	10
	•Power Save Function has become activated.	•Hold Movie Camera in horizontal position.	21
•Picture on the LCD Monitor is not clear.	•Picture quality is not adjusted.	•Adjust the picture quality.	12
•Indications in the Viewfinder are not clear.	•Eyepiece Corrector is not adjusted.	•Adjust it.	13
	•Lens in Eyepiece is covered with dust or dirt.	•Clean lens in Eyepiece.	29
•Recording cannot be started.	•Tab of inserted video cassette is broken out.	•Cover tab hole with adhesive tape.	28
	•No video cassette is inserted.	•Insert a video cassette with intact erasure prevention tab.	10
	•Tape has reached its end.	•Insert a new video cassette.	10
•Date and time cannot be recorded.	•Date and time have not been set.	•Set date and time.	33
•Date and time are not displayed in the Viewfinder.	•[DATE/TIME] Button was not pressed.	•Press [DATE/TIME] Button.	34
	•Built-in Lithium Battery is exhausted.	•Charge built-in Lithium Battery.	35
•Pressing the Start/Stop Button two times from the recording mode causes a break of a few seconds in the recording.	•Recording can only restart after the stopping operation has been completed.	•This is normal and not a malfunction.	—

Playback

•No playback picture is reproduced.	•[POWER] Switch is turned in.	•Turn it out and press [VCR/CAMERA] Button so that "VCR" Indication Lamp lights.	23
	•Movie Camera is not connected to TV set or it is connected incorrectly.	•Connect Movie Camera to TV set correctly.	57
	•Wrong channel is selected on TV set.	•Select correct channel.	—
•Picture is not in colour.	•Colour adjustment on TV set is not made properly.	•Adjust colour control on TV set.	—
•Picture is not in colour or is distorted.	•Tracking is not adjusted correctly.	•Adjust tracking on Movie Camera.	26
•Picture contains noise bars.	•Cue, Review or Still Playback is being performed.	•This is not a malfunction.	27



Indications in the Viewfinder/on the LCD Monitor

■ Warning/Alarm Indications

❶ Condensation (➔ 61)

❷ Video Head Clogging (➔ 60)

❸ Remaining Battery Power
When the last segment of this indication has disappeared, the "CAMERA" indication Lamp flashes for a few seconds, and then the Movie Camera automatically switches off. Replace the Battery Pack with a fully charged one.

❹ Tape
When no video cassette is inserted, or when the tab of the inserted video cassette is broken out, this indication flashes. Insert a video cassette with intact tab.

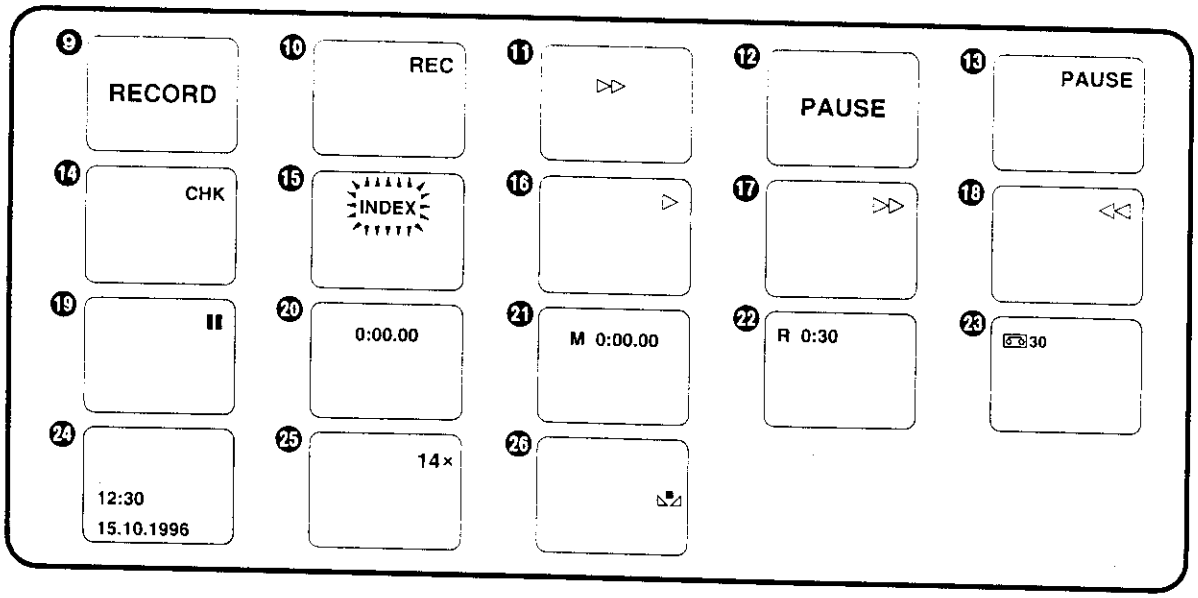
❺ Built-in Lithium Battery (➔ 35)
The built-in Lithium Battery is exhausted; charge it.

❻ End of the Tape
When the tape has reached its end, this indication lights. Insert a new video cassette.

❼ Anti-Ground-Recording (➔ 22)
(NV-VX7A and NV-VX3A)
(only displayed in the Viewfinder)

❽ General Warning/Alarm Indication (➔ 20)
When you use the Movie Camera with the LCD Monitor facing forward, this indication is displayed on the LCD Monitor instead of one of the above indications ❶ to ❻ and ①.

① Error Code
(Error codes are information for service personnel.)
If the "F" Indication appears on the LCD Monitor, some malfunction has occurred. If the indicated error code is between "F01" and "F05", the Movie Camera will automatically turn itself off one minute after the "CAMERA" Lamp has started to flash. (If the indication is "F51" or "F52", the Movie Camera will not turn off automatically.)
If one of the Error Codes is displayed, write it down and tell it to the service personnel.
F01: Locked Take Up-Reel
F02: Locked Supply-Reel
F03: Locked Unloading Mechanism
F04: Locked Loading Mechanism
F05: Locked Cylinder
F51: Locked Focus Motor
F52: Locked Zoom Motor



■ Recording and Playback Indications

⑨ Recording Mode (large indication) (→ 17)

⑩ Recording Mode (small indication) (→ 17)

⑪ Tape Run Mode (→ 17)

⑫ Recording Pause Mode (large indication) (→ 18)

⑬ Recording Pause Mode (small indication) (→ 18)

⑭ Recording Review Mode (→ 18)

⑮ Recording of Index Signal (→ 18)

⑯ Playback/Camera Search Mode (→ 19, 23)

⑰ Fast Forward/Cue Mode (→ 27)

⑱ Rewind/Review/Camera Search Mode (→ 19, 27)

⑲ Still Playback Mode (→ 27)

⑳ Tape Counter (→ 31)

㉑ Tape Counter with activated Memory Stop Function (→ 31)

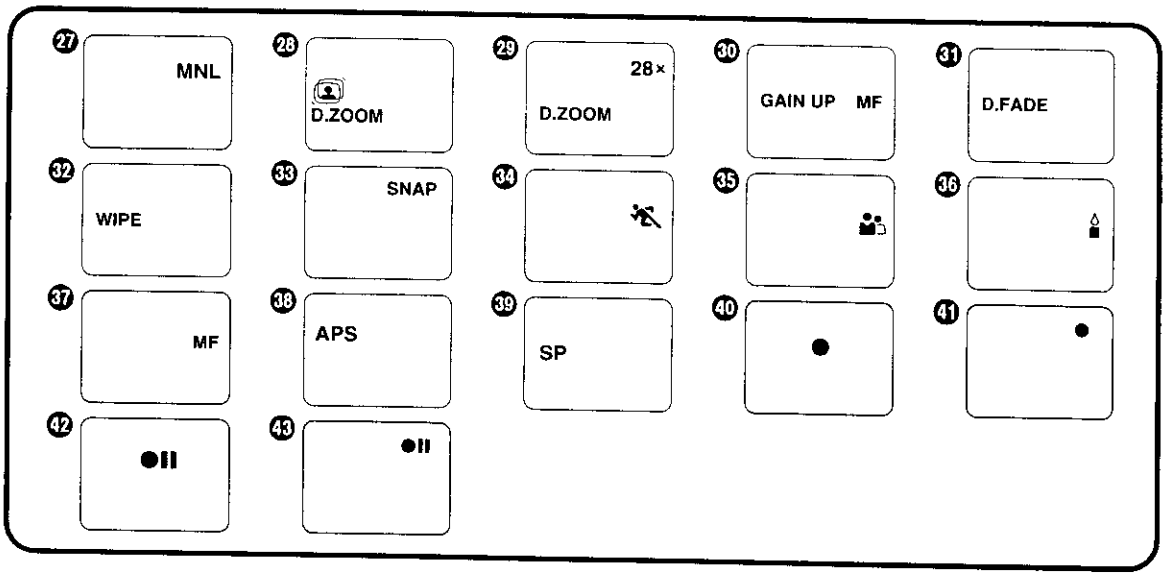
㉒ Remaining Tape Time (→ 32)

㉓ Tape Length (→ 32)

㉔ Date and Time (→ 33)

㉕ Zoom Magnification (→ 36)

㉖ Manual White Balance Mode (→ 44)



㉗ **Manual Recording Mode (→ 44, 50)**

㉘ **Super Image Stabilizer Mode (→ 40)**
(NV-VX7A and NV-VX3A only)

㉙ **Digital Zoom Mode (→ 39)**
(NV-VX7A and NV-VX3A only)

㉚ **Digital Gain-up Mode (→ 39)**
(NV-VX7A and NV-VX3A only)

㉛ **Digital Fade Mode (→ 41)**
(NV-VX7A and NV-VX3A only)

㉜ **Digital Wipe Mode (→ 42)**
(NV-VX7A and NV-VX3A only)

㉝ **Snapshot Mode (→ 38)**
(NV-VX7A and NV-VX3A only)

㉞ **Sports Mode (→ 54)**

㉟ **Portrait Mode (→ 55)**

㊱ **Low Light Mode (→ 55)**

㊲ **Manual Focus Mode (→ 50)**

㊳ **Power Save Mode (→ 21)**
(NV-VX7A and NV-VX3A only)
(only displayed in the Viewfinder)

㊴ **Recording Speed Mode (→ 17)**

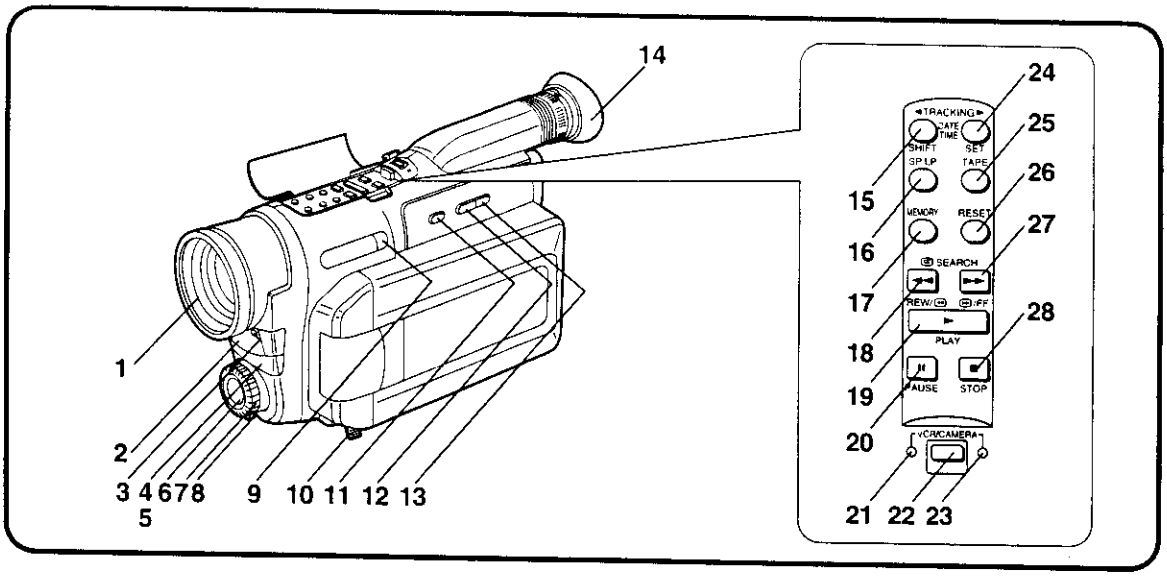
㊵ **Recording Mode (Large indication) (→ 20)**

㊶ **Recording Mode (Small indication) (→ 20)**

㊷ **Recording pause Mode (Large indication) (→ 20)**

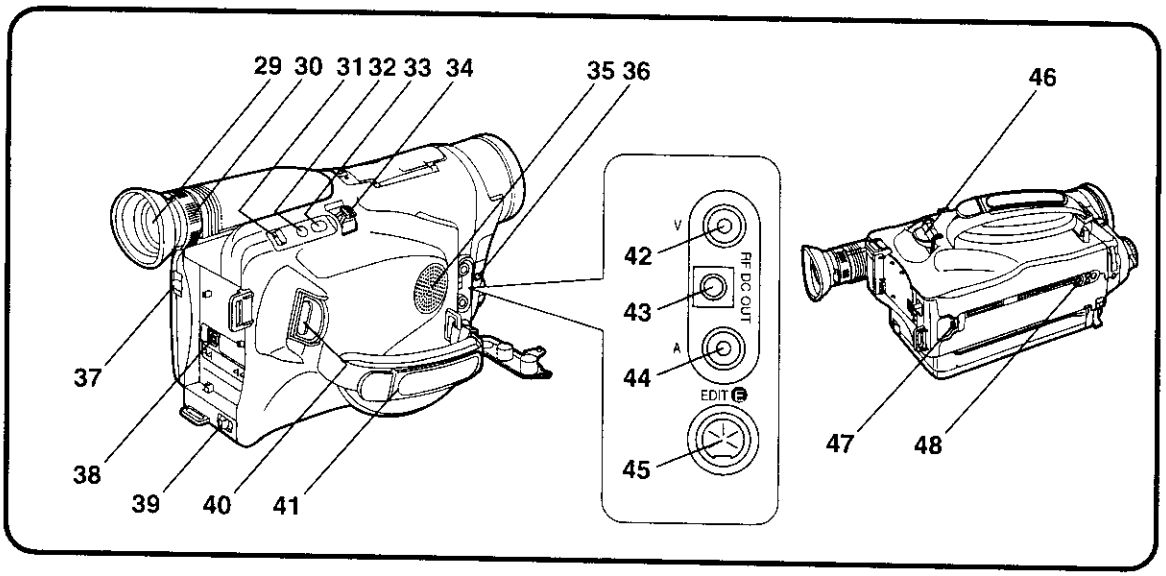
㊸ **Recording Pause Mode (Small indication) (→ 20)**

- The above indications ㊵ to ㊸ are only displayed when recording with the LCD Monitor facing forward.



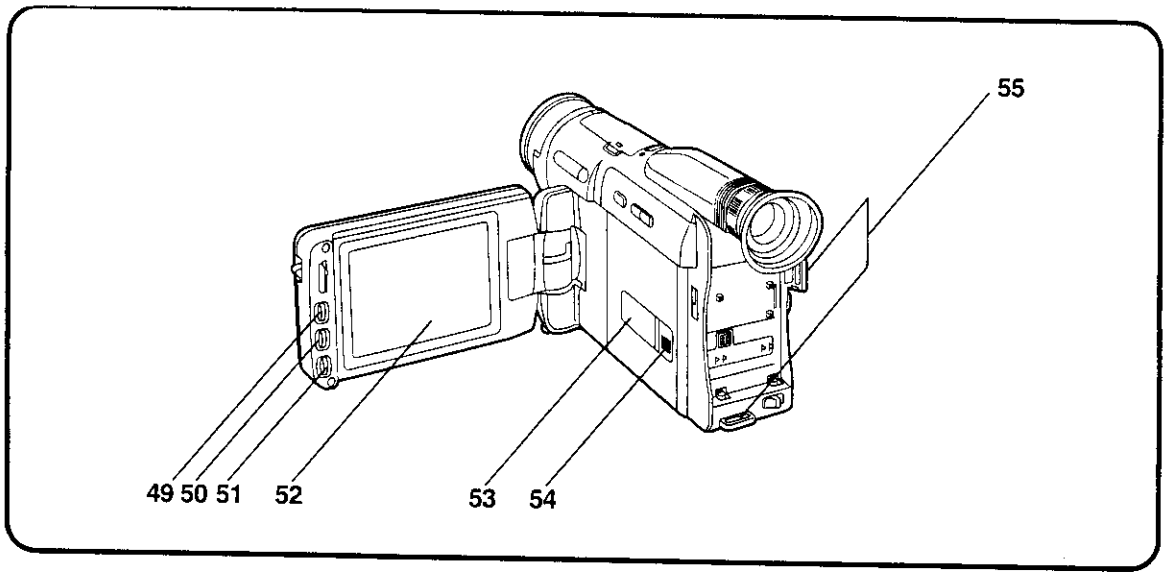
Controls and Components

1 Lens Cap (➔ 10)
2 Microphone
3 Tally Lamp (➔ 17)
4 White-Balance Sensor (➔ 43)
5 Remote Control Sensor (➔ 14)
6 [FOCUS] Button (➔ 49, 50)
7 Focus Ring (➔ 50)
8 [AE] Dial (➔ 17, 43, 44, 49, 50, 54, 55)
9 [DIGITAL] Button (➔ 39, 40, 41, 42)
(NV-VX7A and NV-VX3A only)
10 LCD Support Leg (➔ 24)
11 [FADE] Button (➔ 37, 41)
12 [DATE/TIME] Button (➔ 33, 34)
13 [W.B] Button (➔ 43, 44)
14 Eyecup (➔29)
15 [DATE/TIME/SHIFT • ◄ TRACKING] Button
(➔ 26, 33)
16 [SP/LP] Button (➔ 17, 32)
17 [MEMORY] Button (➔ 31)
18 [◄◄] Button (➔ 18, 19, 23, 26, 27)
19 [►] Button (➔ 23)
20 [❚❚] Button (➔ 27)
21 "VCR" Indication Lamp (➔ 23)
22 [VCR/CAMERA] Button (➔ 23)
23 "CAMERA" Indication Lamp (➔ 17)
24 [DATE/TIME/SET • TRACKING ►] Button (➔ 25, 33)
25 [TAPE] Button (➔ 32)
26 [RESET] Button (➔ 31)
27 [►►] Button (➔ 19, 26, 27)
28 [■] Button (➔ 23)

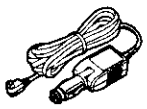
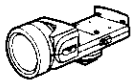
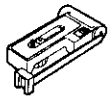
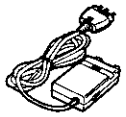
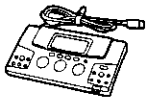
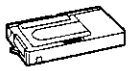


29 Viewfinder (➔ 13)
30 Eyepiece Corrector Ring (➔ 13)
31 [EJECT ⏏] Lever (➔ 10)
32 [SNAPSHOT REC] Button (➔ 38)
(NV-VX7A and NV-VX3A only)
33 [BACKLIGHT] Button (➔ 56)
34 [W • T] Zoom Lever (➔ 36)
35 Speaker (➔ 23)
36 [MIC] Socket
37 LCD [OPEN] Lever (➔ 10, 11)
38 [DC IN] Socket (➔ 30)
39 [BATTERY EJECT ▶] Lever (➔ 8)
40 Start/Stop Button (➔ 17)
41 Grip Belt (➔ 9)
42 [VIDEO OUT] Socket (➔ 57, 58)
43 [RF DC OUT] Socket (➔ 57)
44 [AUDIO OUT] Socket (➔ 57, 58)
45 [EDIT] Socket (➔ 58)
46 [POWER] Switch (➔ 13)
47 [POWER SAVE] Switch (➔ 21)
(NV-VX7A and NV-VX3A only)
48 Tripod Receptacle

49
50
51
52
53
54
55



49 [VOLUME] Control (→ 12, 23)
50 [BRIGHT] Control (→ 12)
51 [COLOUR] Control (→ 12)
52 LCD Monitor (→ 11)
53 Cassette Compartment (→ 10)
54 Cassette Compartment [LOCK] Button (→ 10)
55 Shoulder Strap Holders (→ 9)

1. VW-VBS10E VW-VBH10E 	2. VW-VBS20E VW-VBH20E 	3. VW-KBC2E 	4. VW-ACC2E 	5. VW-K10E 	6. VZ-LDCS13E 
7. VW-SK9E 	8. VW-LF43E 	9. VZ-CT55E 	10.VZ-CT75E 	11.VW-RF7E 	12.VW-EC310E
13.VW-EC1E 	14.VW-TCA7E 	15.VW-VT1A 			

Optional Accessories

1. VW-VBS10E (Ni-Cd Battery Pack)
   VW-VBH10E (Ni-MH Battery Pack)
2. VW-VBS20E (Ni-Cd Battery Pack)
   VW-VBH20E (Ni-MH Battery Pack)
3. Car Battery Charger
4. Car Battery Cord
5. 5-Pin Synchro Cord
6. Video DC Light
7. Shoe Adaptor
8. Filter Kit
9. Standard Tripod
10. Deluxe Tripod
11. RF Adaptor
12. Editing Controller
13. Editing Controller
14. Cassette Adaptor
15. Video Titler

Notes:

- Consult your dealer for details of other accessories not listed here.
- Some of these accessories may not be available in Australia. Please check with your retailer.
- To mount the Video DC Light on the Movie Camera, the Shoe Adaptor is necessary.

Specifications

VHS-C Movie Camera

Information for your safety

Power Source:	4.8 V (Battery Pack) 6.0 V (AC Adaptor)
Power Consumption:	8.5 W (Battery Operation)
Tape Format:	VHS-C Video Cassettes
Recording/Playback Time:	LP; 2 hours with EC60
VIDEO	
Television System:	CCIR; 625 lines, 50 fields PAL colour signal
Output Level:	VIDEO OUT (PHONO); 1.0 Vp-p, 75 ohm terminated
AUDIO	
Output Level/Impedance:	AUDIO OUT (PHONO); −6 dBV (47 kohm loaded)/ less than 1 kohm
Input Sensitivity/ Impedance:	Mic In (M3); −70 dBV 4.7 kohm or more unbalanced
Audio Track:	1 track (Normal — Monaural)
Image Sensor:	⅓-inch CCD Image Sensor
Lens:	14:1 Wide-angle Power Zoom Lens F1.4 Focal Length; 3.9–54.6 mm Digital AI Auto Focus/Auto Iris Filter Diameter; 43 mm
Viewfinder:	4-inch Colour LCD Monitor 0.5-inch Electronic Viewfinder
Standard Illumination:	1,400 lx
Minimum Required Illumination:	0.7 lx (Low Light Mode)
Operating Temperature:	0°C–40°C
Operating Humidity:	10%–80%
Weight:	Approx. 1050 g (without Battery Pack)
Dimensions:	Approx. 95 (W)×143 (H)× 260 (D) mm

AC Adaptor

Information for your safety

Power Source:	AC 100–240 V, 50–60 Hz
Power Consumption:	25 W
DC Output:	DC 6 V, 8.5 W (Movie Camera Operation) DC 4.8 V, 1.2 A (Battery Pack Charging)
Weight:	Approx. 210 g
Dimensions:	Approx. 72 (W)×39 (H)× 143 (D) mm

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.